A Post-Graduate Lecture
ON
CARDIOLYSIS.

BY

SIR ROBERT M. SIMON, M.D.,

SENIOR PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

In 1902 Brauer suggested that, in cases in which it was suspected that the free action of the heart was hampered by adhesions of the pericardium to parts outside it, it would benefit the patient to remove some of the bony and cartilaginous framework of the thorax. He supposed that the precordial part of the chest wall would thereby become more flexible and oppose less resistance to cardiac expansion. It is probable, however, that the relief to the heart thus given may lie less in the softening of the wall against which it beats than in the removal of tight and tough adhesions to the fixed points like the ribs, and that relief may be expected from the removal of these adhesions.

Three of his cases were operated on, and 17 in all were recorded up to 1908. No death occurred as the result of operation, and benefit resulted in each case.

In 1908, Poynton and Trotter brought the case of a patient on whom the operation had been performed before the Royal Society of Medicine, and were of opinion that the proceeding had been justified by the improvement in the boy's condition. It must be remembered that when the operation has been performed, it has been done to relieve symptoms which have resisted all other methods of treatment, and often when, as in my own case, the patient has appeared to be on the very threshold of death.

Another case was referred to at this meeting in which death occurred three months after the operation owing to a fresh attack of pericarditis. From a surgical point of view the discussion narrowed itself down to the point whether or no the whole periosteum of the ribs should be removed—the authors of the paper concluding that the anterior periosteum only should be taken away, reossification under these circumstances not being likely to occur. Accidents to the left pleura, which comes close to the sternum, would in these circumstances be less likely to happen.

In my own case the left pleura was opened twice without any harmful result beyond a trifling pneumothorax, and I think it extremely probable that pneumothorax to any considerable extent is unlikely to occur, seeing that in every case in which cardiolysis is to be useful, the pleura and pericardium will be found to be united in dense adhesions which extend very much further to the left and right than the necessary incisions.

The pericardium is normally adherent to the central tendon of the diaphragm as well as to the sternum, and in a long-standing case of adherent pericarditis the adhesions between the two may be much more extensive than in a normal state. Whether it would be possible without danger to life to cut through these adhesions is a matter for consideration, as I do not doubt that the enlargement of liberty for a heart, if freed from its adhesions to bone, would be enormously increased by diminishing its area of anchorage to the diaphragm.

The following is in brief the record of the condition of my patient before admission and during his stay in hospital:

H. S., an office boy, aged 15, had enjoyed quite good health until the age of 12 years, when he had pleurisy on the left side and was in bed for three weeks. After he got better he felt quite well, but was told not to run, as his heart was affected. He had had growing pains in the legs since the age of 11, but never rheumatic fever. He had not suffered from sore throats. The family history was negative.

Ever since the pleurisy he had noticed that he had been short of breath on exertion. At first this was very slight and he took a good deal of exercise, especially swimming, but he had to give this up on account of shortness of breath. His employment in an office had involved walking upstairs. For a long time he had been quite unable to run, and recently the office stairs have tried him very much. Since February 17th, 1912, his legs and feet had been swollen. He went to bed on the 14th and his abdomen soon became very swollen. He was tapped and 9 pints of fluid were removed.

Condition on Admission.

On May 14th, 1912, when he was examined, he was pale, the cheeks and lips were cyanosed, and the conjunctivae glistening and slightly oedematous. He was propped up in bed and had marked dyspnoea, which was increased by talking.

The cardiac impulse was forcible and heaving; it was not well localized, but was best felt in the seventh and eighth left interspaces in the mid-axillary line. There was bulging of the whole precordial region, the ribs being pushed out with each systole, while below and laterally there was systolic indrawing. The percussion area was extremely wide.

The first sound at the apex was loud, long, low-pitched, and booming; it was not followed by any definite murmur. The second sound was replaced by a distinct harsh diastolic murmur. There was a suggestion of a presystolic murmur. The first sound in the pulmonary area was followed immediately by a soft systolic murmur; the second sound was loud and reduplicated, and there was a diastolic murmur. There were double murmurs in the aortic and tricuspid areas.

The pulse was small, weak, of low tension, 112, regular.

There was some oedema of lungs at both bases and a little generalized bronchitis.

The liver was one fingerbreadth above the umbilicus and tender; marked ascites was present. The fingers were slightly clubbed and reddened at the extremities; the legs were oedematous.

On May 17th 14 ounces of fluid were removed from the right pleura.

On May 29th the quantity of urine was very small. The pulse had been continuously above 100 since admission, and feeble; 7½ pints of fluid were removed from the abdomen.

On May 30th he seemed slightly better. On June 2nd the cardiac impulse was more localized and forcible under the seventh left rib, 5⅞ in. from the mid line.

Operation.

On June 17th the patient was anaesthetized with a mixture of nitrous oxide and oxygen, atropine and morphine having been injected subcutaneously first. Under the anaesthetic he was very bad, and artificial respiration was performed for a short time. Mr. Barling removed the sixth, seventh, and eighth costal cartilages and ribs on the left side for about 4 inches from the sternal margin, through a wound made by turning up a large flap of skin. During the operation the pleura was opened in two places and a pneumothorax produced. The pleura appeared healthy, but the pericardium was very adherent to the anterior thoracic wall. The operation occupied about twenty minutes. After the operation the boy was remarkably well and had comparatively little pain.

On June 21st his pulse-rate, which had almost always been above 100, suddenly fell to 60. He had been having "Guy's pills," one three times a day. On June 29th no diastolic murmur could be heard anywhere. The boy seemed more comfortable than he had been before, and his heart was smaller.

On July 2nd a tracing showed a totally irregular pulse without any trace of auricular systole.

Since July 12th the boy has been up and about. Although his pulse has been continuously irregular he is comfortable and much less cyanosed than formerly. His breathlessness has vanished and also the clubbing and redness of the finger-tips. He has no oedema, and is well able to walk up and down stairs at present.

It will be seen that there had been no definite history of rheumatic fever, though the so-called growing pains were probably of rheumatic origin, as, when he recovered from the attack of pleurisy at the age of 12, he was warned not to run because his heart was affected.

From the time of his pleurisy he was short of breath, but did a good deal of swimming until dyspnoea made him give it up. He remained pretty well until February of this year, when he had to give up work as an office boy because he could not climb the stairs to the office, and took to his bed on February 14th. His feet and legs were swollen, and he soon developed ascites which necessitated tapping and the removal of nine pints of fluid. I saw him in consultation with Dr. Hadley of the General Dispensary, and at the request of his friends admitted him to the General Hospital about the second week in May.

Prior to that date he had not shown any sign of improvement under any and every treatment, and I warned his friends that he was not likely to do well. They quite understood this, but wanted him to have the better nursing and comforts of a hospital. They agreed again when I proposed operation a few weeks later, after having failed to do more than temporary and very transient good by tapping the abdomen and pleura, and by the use of cardiac tonics.

Despite the various bruits that were noted by my house-physician, Dr. Wilkinson, I could never satisfy myself that there were valvular lesions enough to account for all of them, and became more and more impressed by the belief that there were not only adhesions between the fibrous bag and the serous sac of the pericardium, but that the

fibrous bag was adherent to the front of the thorax, the diaphragm, and the pleura.

In consequence of these external pericardial adhesions I imagined that proper muscular contractions of the heart wall had become impossible, and that the bruits might be due to distortion of the cavities and their openings. The boy was distressingly short of breath, very miserable and in great discomfort, and it seemed clear that death was imminent. Under these circumstances I felt that the separation of the external adhesions would at least give the heart some chance of proper contraction, would increase the comfort of the patient, though the risk of his dying under anaesthesia was recognized. Mr. Barling completed the operation in twenty minutes, and from the moment of recovery from anaesthesia the boy became more comfortable than he had been for months.

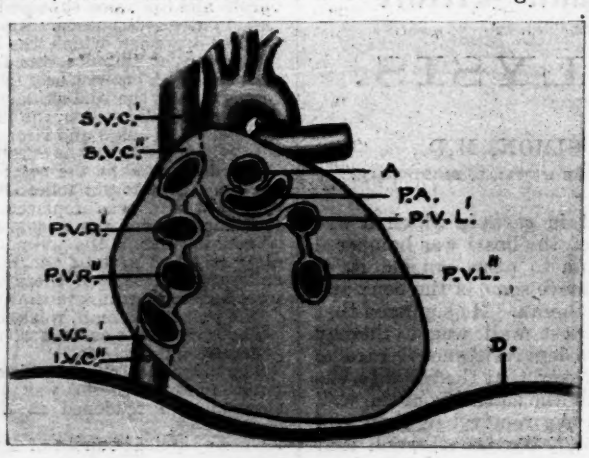


Fig. 1.—Diagram to show the openings in the pericardium after the removal of the heart. S.V.C.', Extrapericardial part of superior vena cava; S.V.C.", intrapericardial part of same; P.V.R.', P.V.R.", upper and lower right pulmonary veins; I.V.C.', intrapericardial part of inferior vena cava; I.V.C.", extrapericardial part of same above diaphragm; A., aorta; P.A., pulmonary artery; P.V.L.' and P.V.L.", upper and lower pulmonary veins of left side; D, diaphragm.

The patient has made an uninterrupted recovery in so far as breathlessness, distress, and oedema of legs or feet or abdomen are concerned. The liver has become normal in size, the enlargement of the spleen has disappeared, and, most important of all, the diaphragmatic movements, though still limited, have become more extensive, while the dilatation of the heart has been much reduced. All the bruits, with the exception of systolic mitral, have disappeared, and the boy can walk, sleep, and enjoy life.

Three days after the operation the pulse, which for months had never been under 100, dropped to 56. He was taking digitalis at the time, and, though this was very soon stopped, it has not once reached 100 again, but is usually between 70 and 80 and is fairly regular.

The pulse tracings indicated auricular fibrillation, and it is pretty certain that there is, as was to be expected, a considerable amount of degeneration of the myocardium, so that it is improbable that he will ever be fit for much muscular effort; but he is alive and comfortable, and this result is solely due to the operation.

The selection of a suitable case for this treatment involves the greatest care and prolonged observation. It is difficult enough to diagnose an adherent pericardium when the fibrous bag is united inseparably to the serous covering of the heart muscle, but to feel sure that in addition there are external adhesions to the chest wall and to the diaphragm is a most serious problem. It is a difficulty that must be faced, however, or the operation will be discredited and possibly some lives sacrificed. Probably the best way to succeed in making a diagnosis is to determine if there is any way of explaining the increased size of the heart as due to any other cause than old pericarditis.

These cases occur almost entirely in young people at the time of development, in whom it has been known that they have been suffering from heart disease of some standing. Generally speaking, disease of the aortic valves, Bright's disease, and adherent pericarditis are the only causes of hypertrophy of the heart in children, and it is fairly easy to satisfy oneself as to the existence of either of the first two causes, so, by methods of exclusion, arriving at the diagnosis of old pericarditis. Chronic myocardial degeneration will cause dilatation of the heart and an increase in the area of precordial dullness, but it is rare in children; it may occur, but is seldom rapid in its course. Adhesions of the pericardial membranes must in course of time result in myocardial changes, but, as already stated, they are slow in development, and simple pericardial adhesions may, and often do, exist for many years without imperilling life; so, if in a youth we find a fairly sudden and rapid failure of heart power, and are able to exclude disease of the aortic valves as accounting for the hypertrophy, we are forced to consider the question of external adhesions.

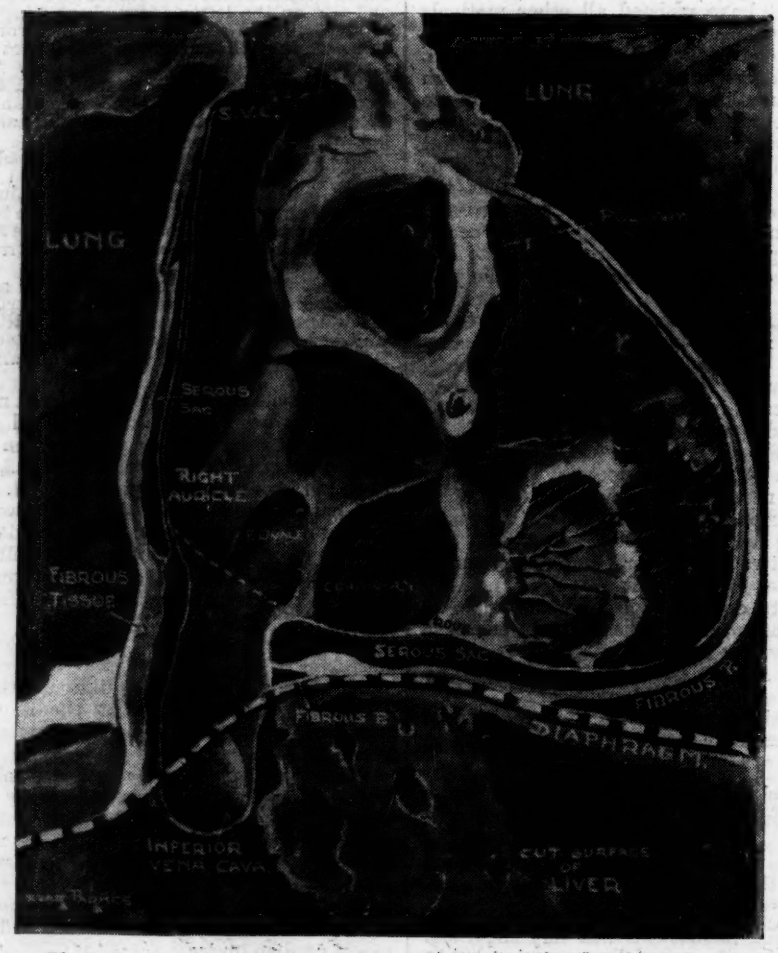


Fig. 2.—Section of heart *in situ* to show inferior vena cava and its relations to pericardium and diaphragm.

We are helped materially by two very important observations—the nature of the impulse and the movements of the diaphragm. The latter can be observed in two ways—by radiography and by the movements of the abdominal wall. In inspiration the diaphragm descends, pushing

before it the abdominal wall; if this movement does not occur, the inference is that the diaphragmatic contraction does not take place, because it is adherent to the pericardium, which maintains an almost constant position, owing to its relations to the root of the lungs and the aorta and pulmonary artery, though its junction to the central tendon of the diaphragm causes it to descend a little when the diaphragm descends.

The impulse in these cases is often very diffused and the apex of the heart can generally be felt in the same position, not moving if the patient changes his position and lies on either side, the whole pericardium being anchored and fixed by adhesions. The limitation of diaphragmatic movement has a very important bearing on the liver. Physiologically it is compressed by the descent of the diaphragm, and in its turn presses on the vena cava, so that the blood from the hepatic veins is pumped up through the inferior vena cava into the right auricle. If the diaphragm does not act, this free passage of blood does not take place; it is dammed up in the liver, which becomes swollen, and, as in the case of H. S., may be felt as low down as the umbilicus. If, therefore, in a patient who has been known or suspected to have adherent pericarditis we find such enlargement, and this is not due to cirrhosis, we may feel pretty confident that the diaphragm is adherent to the pericardium, especially if the diaphragm moves less than normally, and the anterior wall of the abdomen does not protrude with inspiration.

The vena cava passes between the right and central lobes of the central tendon of the diaphragm, and it is more than likely that its shape may be altered and its lumen diminished by an increase of the connective tissue of the tendon, due to inflammatory proliferation.

This leads me to express the hope that it may be possible, by means of removal of this pressure on the vena cava, to still further increase the relief that the present operation of cardiolysis has rendered. It would, of course, necessitate a second operation on the right side, and it may indeed be impossible, as the vena cava is deep in the thorax and has very intimate relations with the phrenic nerve. Mr. Billington, resident pathologist at the General Hospital, has been kind enough to make a number of investigations for me on the relations of the inferior cava in the thorax, and finds that there is a very appreciable length of the vein, an inch or more, which is to be seen in the thorax between the points of piercing the diaphragm and entering the heart.

All the older textbooks speak of the vein as passing through the diaphragm and entering the pericardium immediately. This is certainly not the case, as the vein can be distinctly seen as stated for ¾ in. before it pierces the pericardium; the rest of it, comprising about ½ in., is within the pericardium and partially covered by the serous sac. The later textbooks speak of and illustrate this fact.

It is just this first part which may be affected by adhesions of the right pleura, which are very apt to occur in cases of anterior mediastinitis secondary to pleurisy or pericarditis. It is to the possibility of dealing with this condition that I venture to draw the attention of surgeons. The vena cava, when it leaves the diaphragm, is extrapericardial and is covered by fibrous tissue; what this fibrous covering is seems doubtful. It may be a derivative from the diaphragm or from the fibrous bag of the pericardium, or be independent of both. It is not covered by the pericardial serous sac until about ¼ in. before it enters the right auricle. This ¾ in. of vena cava, which has as yet no connexion with the serous sac of the pericardium, is therefore very likely to be affected by any proliferation of connective tissue, such as occurs in mediastinitis; but it is equally obvious that adhesions of the two layers of the serous sac—namely, that overlying the heart muscle and that lining the fibrous bag of the pericardium—cannot affect this part at all.

It is possible, therefore, to understand why internal adhesions of the pericardium may occur without inducing any signs of pressure on the cava, such as obstruction to the entrance of the blood into the right auricle, and consequent increase in size of the liver. When such signs occur it would follow that we may assume that external adhesions have been formed. This interpretation, if correct, would explain why sometimes chronic pericarditis may exist for years without producing any symptoms, until gradually those of progressive myocardial degeneration assert themselves, and, on the other hand, why very rapid signs of heart failure without general valvular lesions may probably be found to be dependent on external pericardial adhesions.

It is in this latter type of case that cardiolysis may be expected to prove useful.

The anatomical conditions of the vena cava superior as regards its relation to the pericardium are exactly like those of the vena cava inferior, but the symptoms associated with pressure upon it will be those of delay of the venous circulation in the face and neck.

Cyanosis, which was so marked in the case of H. S., disappeared at once after the operation.

No attempt was made in this case to look for adhesions to the diaphragm or the veins, so it is clear that the beneficial result was due to the increased freedom of contraction from removal of the ribs, and by separation of the adhesions between them and the pericardium.

AN INTRACELLULAR PARASITE DEVELOPING INTO SPIROCHAETES,

FOUND BY THE JELLY METHOD OF IN VITRO STAINING IN SYPHILITIC LESIONS AND IN THE CIRCULATING BLOOD DURING THE SECONDARY STAGES OF THE DISEASE.*

(With Special Plate.)

BY EDWARD HALFORD ROSS,

(THE JOHN HOWARD MCFADDEN RESEARCHES) THE LISTER INSTITUTE.

1. *An Intracellular Parasite of Guinea-pigs developing into Spirochaetes.*

By the jelly method of *in vitro* staining,[18] certain peculiar inclusions found embedded within the mononuclear leucocytes of the blood of guinea-pigs and known as Kurloff's bodies were shown to be parasites.[10] These same bodies, if examined by the usual methods involving drying and fixation, merely appear as opaque semi-stained "splodges," and therefore can be easily passed over as artefacts. Hence their true nature was not recognized until the jelly method was employed. The method enabled the development of this parasite, which was named *Lymphocytozoon cobayae*, to be demonstrated. It showed how the chromatin within the inclusion becomes formed into spirochaete-like bodies, and how, after the inclusion has burst, the spirochaetes swim freely in the blood. They can then be seen readily by the dark-ground illuminator as motile filaments swimming in the blood of the guinea-pigs. In addition to this, amoeboid forms were also observed. In the description of this parasite, the suggestion that these spirochaete forms might be microgametes (male element or spermatozoon) was quoted[7]; and the observations were made that the parasite produces anaemia, and that many of the infected guinea-pigs—a large percentage of guinea-pigs bought in England are infected—exhibited single or multiple white patches or tumours within the substance of the liver and spleen.

2. *The Histology of the White Liver Tumours of Guinea-pigs.*

Microscopic sections of these gumma-like tumours of the liver and spleen of guinea-pigs were then furnished me,[2] and these showed that the tumours contained masses of mononuclear cells, the majority of which exhibited the cell inclusions known as Kurloff's bodies.

3. *The History of the Parasite of Guinea-pigs.*

Kurloff[8] thought that the cell-inclusions were vacuoles; another[4] suggested "Secretstoffe"; while again others[5 6] claimed their parasitic nature. More recently it has been maintained[8] that they belong to the Chlamydozoa or Cytoryctes. The supposition of their parasitic nature, however, led to conjectures as to the mode of transmission, and food, ectoparasites, and contact have been suspected. But I have already mentioned that by means of the jelly method these Kurloff bodies have now been proved to be living parasites; and observations point to the transmission of these parasites from guinea-

* Received October 11th, 1912.

pig to guinea-pig being effected at coitus, and also transferred from mother to offspring.*

4. *An Intracellular Parasite of Earthworms developing into Spirochaetes.*

J. W. Cropper[9] found similar cell inclusions within the fixed mononuclear cells of the vesiculae seminales of earthworms; these very closely resemble in appearance the parasites found in the blood of guinea-pigs. By the jelly method Cropper demonstrated the development of these earthworms' parasites through precisely similar stages to those undergone by Kurloff's bodies into free swimming spirochaetes (seen readily by the dark-ground illuminator) which are to be found in the seminal fluid of the infected earthworms.

5. *An Intracellular Parasite developing into Spirochaetes found in Human Syphilis.*

A review of the foregoing facts led to the examination of the sores of syphilitic patients by the jelly method, and cell inclusions similar to Kurloff's bodies were found at once. The first case examined suffered from a non-ulcerated Hunterian chancre, which was pricked with a needle and the blood placed upon a jelly and examined. Several of the mononuclear leucocytes exhibited distinct cell inclusions, each one of which was embedded within the cell cytoplasm itself, surrounded by a cell wall, and having a distinctly staining chromatin mass within its interior. In the same specimen round or pear-shaped bodies were seen lying free between the blood corpuscles; these were similar in shape, size, staining reactions, presence of chromatin nucleus, cytoplasm, granules, as those seen included within the cells.

Since then 143 cases of primary and secondary syphilis have been examined by this method, and the intracellular and extracellular bodies have been found in every case. They have been observed in the chancres, in the "hard shotty" non-suppurating glands removed aseptically, in the blood from the maculae and condylomata, in the ulcerated tonsils, and in the peripheral (finger) blood. And in consequence of the number which have been observed, their resemblance to the parasites of guinea-pigs and earthworms described above, and because of their characteristic appearance when seen stained by the jelly method, their parasitic nature is evident; and now various phases of their development have been demonstrated, and the mode of the production of the spirochaete stage seen. The interpretation which I place upon the phases of the development observed in this parasite are as follows: The small extracellular round or pear-shaped bodies, numerous in the chancres and glands (homologous to the free, amoeboid forms of *Lymphocytozoon cobayae*), become included within the cytoplasm of the leucocytes, epithelial and other cells. Here they encyst themselves in a cell wall, grow, and their chromatin undergoes division and subdivision. These included bodies are very frequently seen in the depths of the chancres, glands, and sores. They are found multiple or single embedded within the cytoplasm of the large mononuclear cells; and as the parasites grow, the nucleus of the cell becomes distorted and squeezed. The chromatin within the parasite stains (on the jelly to be described) purple—each chromatin mass having in its centre a well marked very deeply staining dot. There may be one chromatin mass within the inclusion, or there may be as many as twelve, according to the size and stage of the development of the parasite. Each of these chromatin masses is either round or pear-shaped, and some of them may be seen apparently in the act of subdivision. In the full-grown parasite commonly found included within the large mononuclear cells squeezed from the deeper parts of the chancres, or found in the glands removed by operation, each individual chromatin mass will be seen to resemble the free, round or pear-shaped forms already described. In fact, the cell inclusion can be made to burst on the jelly by pressure on the cover-glass, and the contained young parasites extruded.

But there is another phase to be recorded. In some instances the chromatin mass within the cell inclusion gives rise, while still within its host-cell and when it has reached full size, to several minute purple-staining, curled and twisted spirochaete-like tails (many of them closely resembling *Spirochaeta pallida*) similar to the spirochaete-like bodies seen in the inclusions found with the cells of guinea-pigs and earthworms. If these inclusions are burst the spirochaetes can be extruded.

All the forms here described have been seen in the chancres, glands, and sores of syphilitic patients, and also, but less frequently, as might have been expected, in the circulating blood. They have not been seen apart from syphilis, although a great many controls of blood and tissues have been examined on the jellies.

6. *Homologies between the Human Parasites found and the Intracellular Parasites of Guinea-pigs and Earthworms.*

The parasitic cell inclusion of the guinea-pig has been shown to develop into spirochaetes; the parasitic cell inclusion of the earthworms has been shown to develop into spirochaetes; the parasitic cell inclusion in human syphilis has been seen to develop into spirochaetes, and the presence of spirochaetes in syphilis is well known; but the human parasite has been found to develop into free, round, or pear-shaped bodies as well. It is true that free amoeboid forms were also found in the blood of guinea-pigs, and these have been mentioned by Hunter,[6] but their parallel development in the guinea-pig had not been observed. When these pear-shaped bodies were seen in human syphilitic sores a search for the parallel development of the homologue in guinea-pigs was made, and these bodies were found by J. W. Cropper in the large mononuclear cells of the peritoneal cavity of infected guinea-pigs; and he has now observed their complete development exhibiting stages exactly similar to those of the development of the pear-shaped bodies observed in human syphilides. This discovery in the guinea-pig's

DESCRIPTION OF PLATE.

Fig. 1.—A small intracellular parasite commonly found in syphilitic chancres.

Fig. 2.—Division of the parasite chromatin; an inclusion found frequently in the mononuclear cells of the glands.

Fig. 3.—A cell from a chancre containing two parasites showing development. Note the copper colour of the parasites.

Fig. 4.—A mononuclear cell from a chancre containing three parasitic inclusions, two of which show the development of the spirochaetes, the third being an early stage of the phase shown in Fig. 6.

Fig. 5.—A large mononuclear cell found in the finger blood of a case of secondary (macular) syphilis. It shows the formation of the spirochaetes from a central chromatin mass within the included parasite.

Fig. 6.—A parasitic inclusion found in a cell of the blood taken from a syphilitic papule; it exhibits the subdivision of the chromatin of the parasite and the mode of the production of the free forms

Figs. 7, 8, 9, 10.—The free forms—round and pear-shaped bodies—found commonly in the chancres, sores, and glands of syphilitics; they are amoeboid, stain in a characteristic manner, and are found in the earliest thickening which initiates the Hunterian chancre, as well as in all the manifestations of secondary syphilis examined up to the present time; they contain granules and a central chromatin mass, which at first sight appears as a vacuole containing a central dot, but if watched on the jelly it will be seen to stain as in Fig. 8.

Figs. 1, 2, 3, 6, 8 very closely resemble the development of the female element of *Lymphocytozoon cobayae*, the homologous parasite of guinea-pigs. The rabbit parasites show similar phases.

Figs. 3, 4, 5 very closely resemble the development of the spirochaetes or male element of *Lymphocytozoon cobayae* and of *Spirochaeta lumbrici*, the homologous parasites of guinea-pigs and earthworms. The rabbit parasites show similar phases.

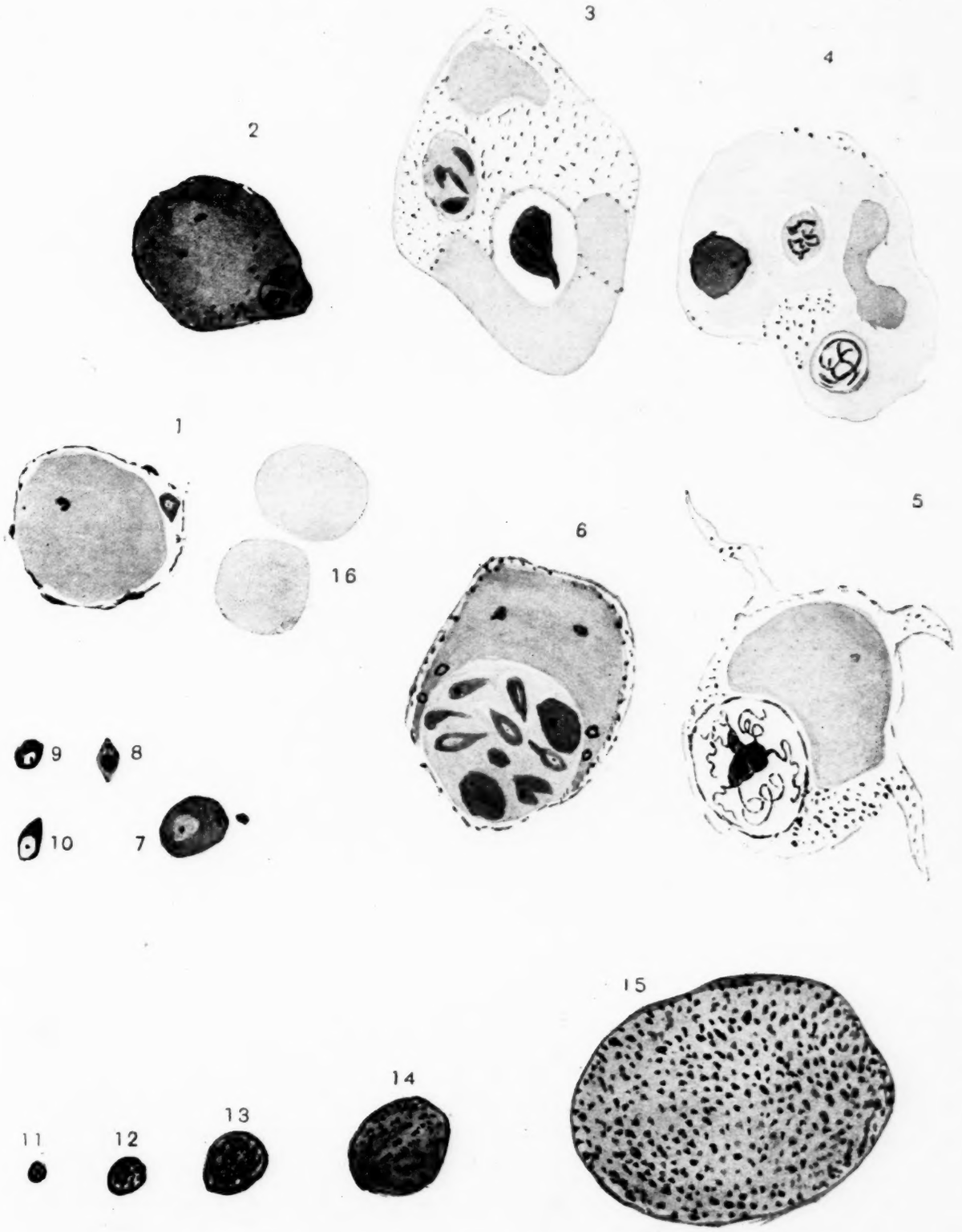
Figs. 11 to 15.—Peculiar bodies found in secondary and early tertiary syphilis. They occur frequently in the sores, non-suppurating glands, and have been seen in the blood of two tertiary manifestations. Similar bodies to these are commonly seen in the blood of guinea-pigs infected with *Lyphocytozoon cobayae*, where they appear attached to mononuclear leucocytes, and in the seminal fluid of earthworms infected with *Spirochaeta lumbrici*, where they appear free as pictured here. In the guinea-pig these large granular bodies produce buds, each one of which, when separated, contains chromatin.

Fig. 16.—Two red blood corpuscles drawn for size comparison.

The figures are copied from specimens of living cells stained *in vitro* by the jelly method.

* The parasite has just been found by Cropper in the peritoneal cavity of newly born guinea-pigs.

E. H. ROSS: AN INTRACELLULAR PARASITE IN SYPHILIS DEVELOPING INTO SPIROCHAETES.



E. H. Ross del ad nat.

cells appears to give credit to the suggestion that the spirochaetes are really microgametes or male elements, and, if this should prove to be the case, the possibility of some of the round or pear-shaped bodies being macrogametes or female elements must be considered. This, however, could only be proved by observing the act of conjugation, and convincing oneself of the observation. But further evidence exists as to this parasite being a protozoon having a cycle of sporogony in the fact that in the deeper layers of the secondary syphilides peculiar cells are to be found. These vary in size from that of a large blood platelet to that of an enormous cell larger than the eosinophile. These cells are spherical, are completely studded with multitudes of small chromatin copper-coloured staining granules. They have been likened to mast cells, but the variation of their size, their bag-like shape, the numbers of granules and absence of nuclei serve to distinguish them. I have only seen these cells in syphilitics.

7. *The History of the Parasite of Syphilis.*

Klebs[1] appears to have been the first to consider the parasite of syphilis in 1879; Losdorfer[11] and Döhle[12] also described parasites. But Stassano[13] seems to have been the first to find cell inclusions in the manifestations of the disease. Then Siegel[14] described his *Cytoryctes luis*. In that description he pictures certain flagellate bodies, the counterpart of which can be seen by the jelly method. These flagellated bodies very closely resemble the production of the spirochaete-like forms, but appear outside the cells. Schaudinn went to investigate Siegel's work and he discredited it. A few months later he produced his famous discovery[15] of spirochaetes swimming free in syphilides, and these were named *Spirochaeta pallida*, and have been very generally accepted as the causative agents of syphilis. Schaudinn's work was confirmed and proved by Metchnikoff and Roux.[16] It seems probable, however, that Stassano, Siegel, and Schaudinn can each claim to have discovered a phase of a parasite found in syphilitics, though I understand that Siegel has lately modified some of his former views. It is important to mention that de Korte,[17] while house-surgeon at the London Lock Hospital, described in 1906 free round bodies in the chancres of syphilitics, and "a cyst measuring 12 μ, containing crystalline-looking threads, the whole staining very faintly." He called these protozoa, and classed them with the Ciliata; his illustrations are very poor. Recently I have heard that Mr. McDonagh, F.R.C.S., surgeon to the London Lock Hospital, has found cell inclusions in syphilis. Intracellular stages of various other spirochaetes have been described by many authorities—Leishman, Andrew Balfour, Fantham, Hindle, Blanc—but the relations between the various bodies described above and the *Spirochacta pallida* were not hitherto demonstrated.

8. *The Technic of the Jelly Method.*

The jelly method, as invented by H. C. Ross,[18] is as follows: 3 c.cm. of a 2 per cent. solution of agar in water, boiled and filtered; 1 c.cm. of Unna's polychrome methylene blue (Grübler), which has been previously diluted with two volumes of water—that is, 1 in 3; and 2 c.cm. of a solution containing 4.5 per cent. sodium citrate, 1.5 per cent. sodium chloride, and 0.225 per cent. atropine sulphate. This is boiled up together in a test tube and 0.3 c.cm. of a 5 per cent. solution of sodium bicarbonate ("alkali solution") added. Then a drop of this mixture when molten is poured on to a microscope slide and allowed to spread thereon, to cool, and to set. The chancre to be examined should be pricked with a large needle, and the blood squeezed from it so as to obtain the deeply situated cells. A drop of this blood—which, for convenience of conveyance and for the prevention of clotting, may be citrated with an equal quantity of 3 per cent. solution of sodium citrate and a 1 per cent solution of sodium chloride—is placed upon a cover-glass and inverted on to the set jelly. The blood spreads out between the cover-glass and the jelly in a thin film. In five minutes, when the cells have come to rest, the specimen can be examined under the microscope. The presence of the atropine in the jelly is optional, but it causes the cells to exhibit amoeboid movements, and this serves to differentiate the living cells from the dead ones and the stain enables the cell contents to be distinguished clearly. The granules of the leucocytes stain scarlet while the cells themselves are still motile; then as the nuclei stain—at first a pale blue, but later a deep ruby red—the motility ceases for the cells die. At length the stain fades from the cells, some of which may burst, for the cytoplasm liquefies and the cell becomes disorganized. It is not easy to make bad specimens by this method, and the pictures obtained are clear, each cell standing alone.

The parasites described generally stain after the granules of the leucocytes, and they appear as copper-coloured bodies either free—when they exhibit amoeboid movements—or included within the larger mononuclear cells. Each parasite shows the copper-coloured cytoplasm which contains a varying number of granules which stain deeply. In the centre of the parasite its "nucleus" appears, at first unstained, when it may be seen as a clear space showing a black dot in its interior. If the parasite is watched, however, the chromatin of the nucleus will be observed to stain suddenly a deep mauve, and then as the parasite dies the stain fades, leaving it a colourless sphere. This achromasia occurs to all the cells, and it is therefore essential to observe the specimen early; but the included parasite sometimes retains its stain after its host-cell has become achromatic. Occasionally in the external sores of syphilis the free parasites may be found engulfed by the polynuclear leucocytes. But in the non-suppurating glands and in the peripheral blood the larger mononuclear cells contain them, and it is in these cells that the development of the parasite may be observed; as stated before, however, the numbers of infected cells are much smaller in the peripheral blood than in the glands and sores.*

Some warnings are necessary. If the blood has been shed some time, or if there is too much alkali solution in the jelly, the cells may show diffusion vacuoles—small pink-staining dots, which may be mistaken for parasites; they possess no chromatin, however—indeed, they contain no structure, and they grow in size as the specimen stands until they burst. The parasite, on the other hand, has a clear cell wall, and possesses definite internal protozoal structure. If the patient from whom the blood is obtained has received treatment, such as an injection of "606," or of mercury, the free parasites are reduced in numbers, apparently within a few hours, whereas the included forms remain as before. This observation is based on but a few cases, and may require modification hereafter.

9. *A Possible Means of Diagnosis.*

It is too soon to be certain whether the presence of this parasite in the sores or blood can be regarded as a means of diagnosing syphilis. The evidence at present is strong. It has been found in syphilis only so far. The parasite develops into spirochaetes closely resembling the *Spirochaeta pallida*. The homologous parasite of guinea-pigs also develops similarly into spirochaetes. The homologous parasite of earthworms also develops similarly into spirochaetes. Guinea-pigs infected with *Lymphocytozoon cobayae* and the resulting spirochaetes exhibit gumma-like tumours, in which the parasites are found. The history of the finding of the parasites and its homologues points to its connexion with the causative agent of the disease. Still, I cannot say yet with absolute certainty that this protozoon is the cause of syphilis. The quickest way of proving this point will be the examination of as many cases as possible, and if others will co-operate in doing this it will soon settle the matter. By this means we shall obtain the real value of the finding of this parasite as an aid to diagnosis. I have found them in the early induration which initiates the formation of the Hunterian chancre; so far, from that time onwards, they have been found in all primary and secondary sores examined.

10. *A Working Hypothesis.*

Perhaps I may be permitted a suggestion. There seems justification for the suggestion that the guinea-pig or rabbit parasites might produce in man a mild affection which would modify the human disease of syphilis in the same way as the vaccination of cow-pox has modified small-pox

* Similar parasites to those found in syphilis have been found in the blood of rabbits. These rabbits exhibit chancres, buboes, ulcers of the genitals, mouth, anus, etc., and some have white patches of the liver like the infected guinea-pigs. The rabbit parasites, which are very numerous in the sores, possess phases indistinguishable from the human parasites.

in the individual and in the community. It must be remembered that the believed parasite of small-pox and vaccinia—the *Cytoryctes variolae* and *vaccinae* of Guarnieri—belongs to a family of cell inclusions (Chlamydozoa) somewhat similar to those I have described. Therefore the suggestion seems worth following up.

REFERENCES.

[1] Klebs, *Arch. f. exper. Path. u. Pharm.*, 1879, p. 161. [2] By Dr. Ledingham. [3] Kurloff, Ehrlich's *Die Anaemie*. [4] Ehrlich (quoted by Ledingham), *Lancet*, June 16th, 1906. [5] Goldhorn, *New York Path. Soc. Proc.*, 1905. [6] Hunter, *Univ. Penn. Med. Bull.*, Philadelphia, vol. xxii, 1909. [7] Sir R. Ross, *Roy. Soc. Proc.*, B., vol. lxxxv, p. 71 (quoted). [8] Schilling, *Centralbl. f. Bakt.*, orig., vol. lviii, p. 4. [9] J. W. Cropper, *Roy. Soc. Proc.* (printing). [10] E. H. Ross, *Roy. Soc. Proc.*, B., vol. lxxxv, p. 67, 1912. [11] Losdorfer, *Arch. f. Derm. u. Syph.*, 1872, and *Wien. klin. Woch.*, 1900. [12] Döhle, *Centr. f. Bakt.*, 1892, and *Münch. med. Woch.*, 1897. [13] Stassano, Acad. des Sciences. Paris, 1901. [14] Siegel, *Abhandlungen d. h. preuss. Akad. d. Wissenshaften*, 1905, Ab. iii, S. 1–15, and *Münch. med. Woch.*, 1906, vol. i, p. 63. [15] Schaudinn, *Arbeiten aus d. kaiser. Gesundheitsamte*, 1905. Bd. 22, p. 527–534; *Deut. med. Woch.*, May 4th, 1905, p. 711; and BRITISH MEDICAL JOURNAL, May 27th, 1905, p. 1161. [16] Metchnikoff and Roux, Acad. de Méd. de Paris, May 16th, 1905, and reported in the BRITISH MEDICAL JOURNAL, May 27th, 1905, p. 1178. [17] De Korte, *Practitioner*, June, 1906. [18] H. C. Ross, *Lancet*, January 16th, 1909, and *Roy. Soc. Proc.*, B., vol. lxxxi, p. 97, 1909.

THE "INFECTIVE GRANULE" AS THE INITIAL PHASE IN THE LIFE-HISTORY OF A HAEMOGREGARINE.

(Preliminary Note.)

BY HERBERT HENRY, M.D., B.S.LOND.,

SENIOR DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY OF SHEFFIELD; ASSISTANT PHYSICIAN TO THE SHEFFIELD ROYAL HOSPITAL.

(From the Pathological Laboratories, University of Sheffield; and the Laboratory of the Marine Biological Association, Plymouth.)

WHILE investigating the spirochaetosis of Sudanese fowls, Balfour of Khartoum [1] discovered that there occurred from time to time during the disease a period which he has called the after-phase, when the causal organism as such disappeared from the peripheral circulation, and when, coincident with this disappearance, the erythroblasts were found to contain certain curious intracorpuscular bodies which he maintained to be a stage in the life-history of the spirochaete in question. Such an interpretation was much disputed at the time and still meets with opposition, but Balfour himself since his original communications has done much to throw light on the exact significance of these intracorpuscular bodies.[2] Working with infected chickens in which a natural crisis has occurred, or in which an artificial crisis has been induced by salvarsan, he found by using dark-ground illumination that the spirochaetes break up into granules in the internal organs. These granules, to which have been given the name of "infective granules," are discharged by the still living spirochaete from one or other end of its periplastic sheath or cell membrane, and would appear to constitute a stage in the non-sexual life cycle of the parasite, for they seemingly enter the red cells, develop in them, undergo a process akin to schizogony, and regain the liquor sanguinis as tiny merozoites, which vary in number, and slightly also in size.

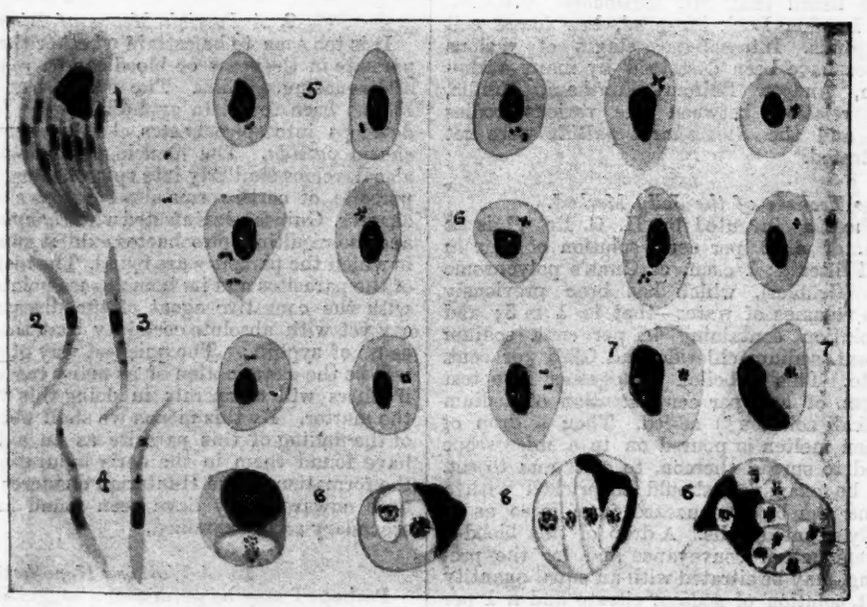
In working with the blood of the Gadidae, in one species of which—*Gadus pollachius*—I have found a spirochaete, I have from time to time met with corpuscular inclusions which I believe to be of the same significance as the bodies described by Balfour in chicken spirochaetosis. Similar appearances have been described, too, in the case of certain other non-pathogenic spirochaetes.[3 4] Moreover, attention may be directed to the series of observations carried out by Sir William Leishman on the chromatin granules found to occur in the tissues of *Ornithodorus moubata* fed on blood containing *Spirochaeta duttoni*.[5 6]

In trypanosomiasis the so-called infective granule has been demonstrated by Major Fry,[7] and observations with regard to this body in *Trypanosoma gambiense* have been published recently by Lieutenant Ranken, of the Sudan Sleeping Sickness Commission.[8]

Buchanan,[9] too, in describing certain cultural phases of *Trypanosoma brucei*, ends with a rather significant remark:

> A marked feature, perhaps worthy of note, was the constant presence of free chromatin granules in nearly all the smears from the second day onwards. These were apparently derived from the nuclei of disintegrating trypanosomes, and possibly represented a first phase in development.

While searching some blood films taken in 1909 from specimens of *Solea vulgaris* infected with *Haemogregarina simondi*,[10] I noted that certain of the red corpuscles harboured in their cytoplasm two deeply staining granules having the appearance of chromatin. At the time I took these bodies to be of the nature of the centrosomic bodies described by Ross, Moore, and Walker.[11] Recently an opportunity has occurred of investigating a series of specimens of *Solea vulgaris* at Plymouth. In all of these fish *Haemogregarina simondi* could be demonstrated in the circulating blood or in the viscera. The parasite was examined in fresh blood, to which had been added N/2 sodium chloride containing a trace of certain dyes, in cultures of Nicolle's blood agar medium, and also in various fixed preparations. Most commonly the parasite occurs in the form of a colony of eight individuals all lying side by side inside the same red corpuscle, which is in consequence enormously enlarged (Fig. 1). The length of each individual varies from 18 to 22 μ. The anterior extremity is club-shaped, and often furnished with a small proboscis. The posterior extremity is thinner and tapers to a point, while the nucleus is situated somewhere in the middle third of the body. (Fig. 2.). While watching the escape of these parasites from infected corpuscles into the surrounding plasma I was struck by the fact that in many of the free haemogregarines one, two, or more bright refracting granules were found to emerge from the nucleus (Fig. 3) and to make their way through the protoplasm of the parasite to one or other extremity, in the majority of cases to the posterior extremity. In this passage from the nucleus to the posterior extremity these granules frequently divide, so that two granules which have emerged from the nucleus become four when they reach the posterior extremity. (Fig. 4.) Further, these granules are shaken free from the living haemogregarine as it swims among



the corpuscles. The free granules, which are frequently to be met with in pairs, each individual being apparently connected to its fellow by an invisible thread, are much more highly refractile, and appear to exhibit more marked Brownian movement than do the free leucocyte granules and the other granules to be found in fresh blood preparations. On one occasion a pair of granules which were seen to escape from a free haemogregarine were found overnight to have taken up a position actually inside a neighbouring red blood corpuscle. Moreover, these two intracorpuscular granules were found to have divided into four between 10.30 a.m. and 4 p.m. of the same day.

The extrusion of these granules from the nucleus of the parasite, their passage to the posterior extremity, and their liberation into the surrounding blood plasma, may be readily observed in films of fresh blood kept between slide and cover-slip, or in films made from blood kept in tubes of Nicolle's blood-agar medium. In the case of soles examined during May, 1911, granule formation occurred, as a rule, after the individual parasites had escaped from the host cell, whereas with soles examined in September, 1912, granule formation was in most cases marked while the parasites were still intracorpuscular.

In living blood the granules readily take on a red staining with polychrome methylene blue, and they also take up pyronin with great avidity.[1] With fixation followed by Romanowski stains they are large and well marked, while with iron haematoxylin in sublimate fixed wet smears they appear smaller.

Again, in specimens of blood showing a heavy infection with *Haemogregarina simondi* red corpuscles are frequently found containing in their cytoplasm granules which are indistinguishable from and probably identical with the granules extruded from the haemogregarines. These granules may be spherical or pyriform in outline, and would appear to be undergoing division inside the corpuscle, for they are frequently to be met with in twos and in fours (Fig. 5). Adjacent granules are often found to be connected by a delicate thread of chromatin. These intracorpuscular bodies at first consist entirely of chromatin, but as they increase in size there appears round each a small clear zone of irregular outline (Fig. 6), which zone later becomes a definitely stained piece of protoplasm (Fig. 7). Phases showing this acquisition of protoplasm are met with occasionally in the blood stream, but more often in spleen and in liver smears. Also in spleen and in liver smears these bodies, composed of granules *plus* protoplasm, would appear to increase rapidly in size, so as to give rise to larger oval bodies which are distinctly haemogregarines (Fig. 8).

In the above short description I have not attempted to give the vertebrate life-history of *Haemogregarina simondi*, but have referred merely to a process of granule formation which presents a very striking resemblance to the formation of infective granules described in connexion with certain spirochaetes and trypanosomes.

A trypanosome of which I have preparations occurs in *Solea vulgaris*, but I have never met with this trypanosome in specimens of sole taken at Plymouth, and I have never found flagellates developing in any of my cultures.

REFERENCES.

[1] Balfour, Third Report Wellcome Research Laboratories, Khartoum, 1908, p. 38. [2] Balfour, Fourth Report Wellcome Research Laboratories, Khartoum, 1911, p. 76. [3] Bosanquet, *Quart. Journ. Micr. Sci.*, February, 1911. [4] Dobell, *Quart. Journ. Micr. Sci.*, April, 1911. [5] Leishman, *Journ. Roy. Army Med. Corps*, 1909, vol. xii, No. 2, p. 123. [6] Leishman, *Trans. Soc. Trop. Med. and Hyg.*, 1910, vol. iii, No. 3, p. 37. [7] Fry, *Proc. Roy. Soc.*, July, 1911. [8] Ranken, BRITISH MEDICAL JOURNAL, August, 1912. [9] Buchanan, Fourth Report Wellcome Research Laboratories, Khartoum, 1911, p. 57. [10] Laveran et Mesnil, *Compt. rend. Acad. d. Sc.*, Paris, 1901, p. 572. [11] Ross, Moore, and Walker, *Trans. Path. Soc. of London*, 1907, p. 107.

PROFESSOR EHRLICH has been elected a member of the Royal Bavarian Maximilian Order for Art and Science. This, we understand, is the highest distinction which Bavaria confers on scientists.

THE old "Freie Vereinigung der Chirurgen Berlins" (Free Union of Berlin Surgeons) has become extinct after an honourable and active life of a quarter of a century, and in its place a new society, called the Berlin Society of Surgery, has been formed. On November 11th Professor E. Sonnenburg, as President of the new society, delivered the opening address, in which he briefly sketched the history of the late union and indicated the lines upon which the new society would work.

C

THE PARASITES RECENTLY FOUND IN SYPHILIS.

By E. JENNINGS, D.P.H.CANTAB.,
LIEUTENANT-COLONEL, I.M.S.

HAVING been informed by Mr. E. H. Ross that he had recently found a protozoal parasite always present in the lesions of secondary syphilis, and after he had shown me the details of the jelly method which he employs for its demonstration, I have repeated the technique and have examined some chancres and syphilitic blood. I have found the parasite which he described, and have traced some of its phases.

The jelly method: "coefficient jelly," consists of 2 per cent. agar, containing a sufficiency of saline solution to prevent cytolysis; 5 c.cm. of this is placed in a test-tube, and 0.4 c.cm. of Unna's polychrome methylene blue, and 0.4 c.cm. of a 5 per cent. solution of sodium bicarbonate in water is added; the total bulk of the mixture in the test-tube is then made up to 10 c.cm. This jelly is boiled, and when molten a drop is poured on to a microscope slide and allowed to spread into a thin film. When cool and set the blood or pus from a chancre is put on a cover-glass, and this is inverted on to the surface of the set jelly. The cells spread out between the cover-slip and jelly, and in a few minutes the leucocytes and parasites begin to stain, and can be examined.

The parasites appear as small, round, brown-coloured bodies lying free in the plasma. Each one contains some deeply staining granules and a vacuole (Fig. 1). Besides

Fig. 1. Fig. 2. Fig. 3. Fig. 4.

these similar bodies are found enclosed within the mononuclear cells. In this situation they show up on the jelly as copper-coloured "inclusions," which on careful examination contain a stained structure (Figs. 2, 3). If the epithelial cells from the chancres are examined on the jelly, some of them also will be seen to contain these parasites, and some of these will be seen developed as pictured in Fig 4. In these the central structure of the enclosed "inclusion" has developed into a bunch of spirochaetes; these spirochaetes diverge from a central stained mass like the spokes of a wheel. Some of the spirochaetes show the curly, wavy forms so typical of the *Spirochaeta pallida*.

The jelly method is so very simple that I have written this note with the view of its general adoption as a means of diagnosis in syphilis. One has only to see the phases as drawn in Fig. 4 to assure oneself that here is the development of the causative agent of the disease. The process of making the jellies requires but a few minutes, and each tubeful suffices to make many specimens. The time occupied in making each specimen is short. These parasites can also be seen in the peripheral blood of syphilitics, but here they are more scarce, and for diagnostic purposes I advise the examination of chancres and sores when several cases are to be examined in hospital practice or in venereal wards. If there is time blood examination is as satisfactory.

ON CERTAIN BODIES FOUND IN SYPHILITIC LESIONS DEMONSTRATED BY THE JELLY METHOD.

By S. R. MOOLGAVKAR, M.R.C.S.,
HOUSE SURGEON, MALE LOCK HOSPITAL.

MR. E. H. ROSS, of the John Howard McFadden Researches, the Lister Institute, first drew my attention, at the end of August, to his paper on the development of a leucocytozoon of guinea-pigs, which was published in the *Royal Society Proceedings*, B., vol. lxxxv, February, 1912. On September 4th he demonstrated to me the "jelly" method.

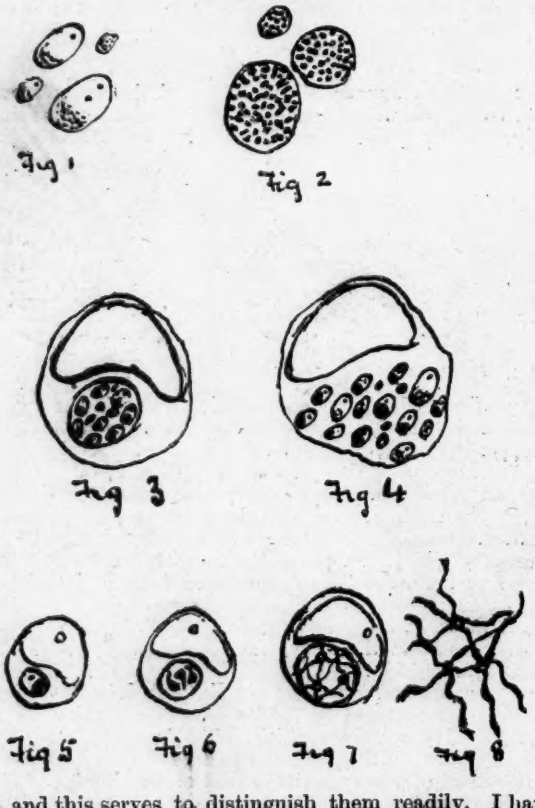
On September 9th he showed me some peculiar "bodies' which he had found by this method in syphilitic chancre scrapings. In consequence, I have followed this method, and here describe the bodies I have seen while working with the jellies myself.

I make the jellies as follows:

Agar, 1 gram; sodium chloride, 0.5 gram; polychrome methylene blue, 4 c.cm.; distilled water, 100 c.cm.; boil, filter, and store in test tubes. When required for use, the jelly is melted and a small quantity is poured on to a slide to cover an area of about a square inch and allowed to cool and set.

The syphilitic material to be examined is obtained from a hard chancre; a drop of the scraping is mixed with an equal quantity of a 3 per cent. solution of sodium citrate in water, and placed on a cover-slip, which is inverted on to the surface of the set jelly. Or a hard, "shotty" syphilitic gland is punctured with a Bayly needle and the gland squeezed; after a minute the needle is withdrawn, and the material contained in it is expelled into the citrate solution as before.

On the jelly the cells, leucocytes, epithelial cells, lymphocytes, stain a general blue; the "bodies" stain



red, and this serves to distinguish them readily. I have examined 25 chancres and 22 glands by this method, and have found the bodies in every syphilitic case. They may be described as (1) extracellular, (2) intracellular. The former consist of two forms: (*a*) Oval bodies 2 to 10 microns in diameter, containing a granular nucleus and one or two chromatin dots (Fig. 1); (*b*) bodies varying in size from 6 to 15 microns, in which I can find no definite nucleus, but they are completely filled with granules sometimes in violent movement (Fig. 2). (2) The intracellular bodies may be divided into two classes also: (*c*) A red-staining mass, embedded within the cytoplasm of large cells, containing several definite round or pear-shaped chromatin structures (Fig. 3). Sometimes this mass appears to have burst when the chromatin structures are found free inside the cell cytoplasm (Fig. 4); (*d*) a large mononuclear cell containing similar red-staining masses (Fig. 5), which show within their interior either chromatin rods (Fig. 6), or a skein or tangle (Fig. 7) of chromatin threads. Apparently these intracellular bodies burst out of the cells, for the threads can sometimes be seen near, but outside, the cells attached to a common chromatin ring (Fig. 8).

In addition to the above I have seen certain other forms about 10 microns in diameter, which stain very deeply and contain five to six chromatin granules. This form, which is free, frequently seems to divide into six daughters, each containing a chromatin granule. Occasionally in the glands, but frequently in the chancres, refractile bodies about a micron in size are found; each contains two chromatin dots. It is possible that this is but a phase, incompletely stained, of the free forms already described.

I am of the opinion that these "bodies" are parasites because of their peculiar staining reaction and because they develop while included within the cytoplasm of the cells of the chancres and glands. Up to the present I have only seen them in syphilitic subjects.

I beg to express my thanks to Mr. E. H. Ross for showing me the technique of the jelly method, and to the staff of the London Lock Hospital for permitting me to use the material obtained from their patients.

ON THE INFLUENCE OF METEOROLOGICAL CONDITIONS ON THE DEVELOPMENT OF TRYPANOSOMA RHODESIENSE IN GLOSSINA MORSITANS.

BY

ALLAN KINGHORN AND WARRINGTON YORKE.

(Sixth Interim Report of the Luangwa Sleeping Sickness Commission, British South Africa Company.)

IN a previous communication[1] various observations were recorded which appeared to indicate decisively that the developmental cycle of *T. rhodesiense* in *Glossina morsitans* is influenced to a marked degree by the meteorological conditions to which the flies are subjected. It is unnecessary to repeat in detail the experiments upon which this conclusion was based, but the evidence may be briefly summarized.

1. At Nawalia, in the Luangwa Valley, where a relatively high mean temperature was experienced during the greater part of the year (75–84° F.), *T. rhodesiense* was readily transmitted at laboratory temperatures by both "bred" and "wild" *Glossina morsitans*.

2. At Ngoa, on the Congo-Zambesi watershed, where, during the cold season of the year, the mean temperature was much lower (59–63° F.), we were unable to transmit the parasite by means of *Glossina morsitans*.

3. The trypanosome was readily transmitted at Ngoa during the cold season by flies which were kept in an incubator at a mean temperature of about 80° F.

4. Corroborative evidence in support of this contention was afforded by an analysis of the valley transmission experiments, which showed that the largest proportion of infective flies was obtained in the hottest season of the year. Further, in the Luangwa Valley a larger percentage of "wild" *Glossina morsitans* were found to be infective during the hot season; and lastly, the percentage of flies naturally infected was very much greater in the valley than on the plateau.

During the past months further experiments were completed which indicated in the most decisive manner that the development of *T. rhodesiense* in *Glossina morsitans* is directly dependent on the temperature to which the flies are subjected.

A further attempt to transmit the parasite by *Glossina morsitans* at laboratory temperature was commenced on July 24th; 160 "wild" flies, previously shown to be non-infective by feeding on a healthy monkey, were utilized. They were fed for three days on a heavily infected guinea-pig, and afterwards for thirty-seven days on healthy monkeys, none of which became infected.

In all, therefore, a total of 680 flies were used in six attempts to transmit the human trypanosome by *Glossina morsitans* on the Congo-Zambesi watershed at mean temperatures ranging from 59 to 65° F., without obtaining a single infective fly, whereas at Nawalia, in the Luangwa Valley, of 330 flies used in similar experiments, 6, and probably 10, became infective at mean temperatures ranging from 75 to 84° F. Details of these experiments are given Tables I and II.

The incubator experiments described in the previous paper were repeated, but laboratory-bred flies were used instead of "wild" ones. Attention was drawn to the fact

TABLE I.—*Synopsis of Transmission Experiments with T. rhodesiense and Glossina morsitans, carried out at Nawalia, Luangwa Valley, Northern Rhodesia.*

No.	Date on which Started.	Season.	Number of Flies Used.	Variety of Flies Used.	Result.	Duration of Developmental Cycle: Days.	Mean Temperature during Developmental Cycle.	Absolute Maximum during Developmental Cycle.	Absolute Minimum during Developmental Cycle.	Relative Humidity per Cent.
							°F.	°F.	°F.	
1	Aug. 20, 1911	Dry	26	Bred	Infection	13	75.1	90.0	60.5	35.0
2	Nov. 14, 1911	Commencement of rains	16	,,	,,	15	83.5	93.5	74.5	44.8
3	Nov. 14, 1911	,,	57	Wild	,,	11	83.8	93.5	74.5	44.8
4	Dec. 29, 1911	Rainy	20	Bred	Negative	—	78.2	87.1	72.8	74.5
5	Jan. 12, 1912	,,	42	Wild	,,	—	78.0	85.7	72.8	74.2
6	Jan. 12, 1912	,,	42	,,	,,	—	78.0	85.7	72.8	74.2
7	Jan. 12, 1912	,,	23	Bred	Infection	19	77.9	85.7	72.8	75.4
8	Feb. 13, 1912	,,	104	Wild	,,	25	77.3	86.0	71.0	66.5

In the cases of the unsuccessful experiments, the mean temperature and the relative humidity have been calculated for the first thirty days only.

TABLE II.—*Synopsis of Transmission Experiments with T. rhodesiense and Glossina morsitans, carried out at Ngoa, Congo-Zambesi Watershed.*

No.	Date on which Started.	Season.	Number of Flies Used.	Variety of Flies Used.	Result.	Duration of Developmental Cycle: Days.	Mean Temperature during Developmental Cycle.	Absolute Maximum during Developmental Cycle.	Absolute Minimum during Developmental Cycle.	Relative Humidity per Cent.
							°F.	°F.	°F.	
1	May 18, 1912	Dry	116	Wild	Negative	—	62.7	74.5	50.5	52.0
2	June 13, 1912	,,	90	,,	,,	—	59.1	72.4	42.0	52.0
3	June 14, 1912	,,	119	,,	,,	—	59.1	72.4	42.0	52.0
4	June 26, 1912	,,	19	Bred	,,	—	60.2	71.8	42.0	52.0
5	July 11, 1912	,,	176	Wild	,,	—	62.0	72.0	49.1	50.0
6	July 24, 1912	,,	160	,,	,,	—	61.7	76.1	51.0	47.0

that the low temperatures obtaining at Ngoa in the cold season were very unfavourable to the pupation of *Glossina morsitans;* in fact, so slow was the process that, in spite of the large number of pupae at our disposal, we were unable to procure sufficient flies for experimental purposes. The difficulty was all the greater as many of those which did emerge were malformed, and quickly died. In order to obtain a sufficient number of "bred" flies for this experiment we resorted to the expedient of placing the pupae, some of which had been deposited over two months previously, in the incubator (85° F). Within three or four days a large number of flies were procured.

The experiment was commenced on August 8th with 30 "bred" flies, to which were added 12 on the 9th, 11 on the 10th, and 3 on the 11th. These groups were fed for four, three, two, and one days respectively on a heavily infected guinea-pig, and afterwards on healthy monkeys. Parasites were found in the blood of the animal on which the flies of the fourth group were fed on the eighteenth day after the insects fed on the guinea-pig; so that, allowing five days for the incubation of the disease in the monkey, the fly was infective on the thirteenth day. The monkey on which the flies in Group 1 were fed became infected on the twenty-sixth day of the experiment, so that the duration of the developmental cycle of the parasite in the fly would be twenty-one days. As we cannot be certain that the infective fly fed on the infected guinea-pigs on each of the four days, the latent period in the insect may be anything from seventeen to twenty-one days. The animals on which Groups 2 and 3 were fed did not become infected.

It will be seen from Table III that the total number of flies used in the incubator experiments was 189, namely, 133 "wild" and 56 "bred." Of the "wild" flies 3 became infective, and of the "bred" 2, that is, 2.6 per cent. of the total number used. This figure is, however, hardly a fair estimate, as of the 133 "wild" flies only 78 were alive at the end of the first seven days of the experiment. This heavy mortality was probably due to the sudden change from the cold external air to the warm, dry atmosphere of the incubator. As a general rule, in our transmission experiments it was found that about 10 per cent. of the flies died during the first week. This was approximately the case in the incubator experiment in which "bred" flies were used, as, owing to the fact that the insects were hatched out in the incubator, they were not subjected to any sudden change of atmospheric conditions. We consider, therefore, that had the mortality of the flies in these two experiments been the customary 10 per cent. instead of over 40 per cent., the proportion of infective flies would be 3 of 90, instead of 3 of 133, or 3.3 per cent. instead of 2.2 per cent. This figure, 3.3, approximates closely to that obtained in the incubator experiment in which "bred" flies were used—namely, 3.5, and also to that obtained in the valley experiments—3.5.

The results of these series of experiments—namely, those carried out at Nawalia at laboratory temperatures 75–84° F., those made in the laboratory at Ngoa at from 59–65° F., and the incubator experiments at Ngoa 80.6–82.6° F.—show in a most conclusive manner that comparatively high temperatures—75–85° F.—are necessary

TABLE III.—*Synopsis of Experiments to Transmit T. rhodesiense by Means of Glossina morsitans kept in Incubator.*

No.	Date on which Started.	Season.	Number of Flies Used.	Variety of Flies Used.	Result.	Duration of Developmental Cycle: Days.	Mean Temperature during Developmental Cycle.	Absolute Maximum during Developmental Cycle.	Absolute Minimum during Developmental Cycle.	Relative Humidity per Cent.
							°F.	°F.	°F.	
1	June 30, 1912	Dry	61	Wild	Infection	14	80.6	87.8	74.5	36.0
2	July 1, 1912	,,	72	,,	,,	13	80.6	87.8	74.55	36.0
3	Aug. 8, 1912	,,	56	Bred	,,	13 and 21	82.6	89.2	77.0	72.0

TABLE IV.—*Synopsis of Experiments showing the Effect of Raising the Temperature on the Development of T. rhodesiense in Glossina morsitans.*

No.	Date Started.	Season.	No. of Flies Used.	Variety of Flies.	Laboratory Conditions.				Date on which Flies were put in the Incubator.	No. of Flies Alive at the time they were first put in the Incubator.	Incubator Conditions.				Remarks.
					Mean Temperature.	Absolute Maximum.	Absolute Minimum.	Relative Humidity per Cent.			Mean Temperature.	Absolute Maximum.	Absolute Minimum.	Relative Humidity per Cent.	
					°F.	°F.	°F.				°F.	°F.	°F.		
1	June 13th, 1912	Dry	90	Wild	59.1	72.4	42.0	52.0	July 24th, 1912 (41st day)	42	85.0	90.5	77.0	36.0	Three flies infective on 48th day.
2	June 14th, 1912	,,	119	,,	59.1	72.4	42.0	52.0	August 14th, 1912 (61st day)	38	83.0	91.0	77.0	72.0	One fly became infective about the 72nd day.

for the completion of the developmental cycle of *Trypanosoma rhodesiense* in *Glossina morsitans*.

In our previous paper we discussed the question whether any climatic factor other than temperature might possibly exert some influence on the development of the trypanosome in the fly. We referred especially to the relative humidity of the atmosphere, as the most favourable season of the year in the Luangwa Valley for successful transmission experiments appeared to be that in which the relative humidity was extremely low. Owing to the fact that the data at our disposal were insufficient, we were unable to come to any definite conclusion.

In order to decide the point, the relative humidity of the atmosphere in the incubator in the "bred" fly experiment described above, was kept at from 70–72.5 per cent. As the incubation period of the parasite in the flies (thirteen and seventeen to twenty-one days respectively), and also the percentage of infective flies obtained (3.5 per cent.) were approximately the same as those in other experiments in which the relative humidity was very low, we can only conclude that this factor does not exert any appreciable influence on the developmental cycle of *T. rhodesiense* in *Glossina morsitans*.

The following experiments were devised with a view to ascertaining more definitely the influence of temperature on the development of the parasite.

EXPERIMENT 1.

Two batches of "wild" *Glossina morsitans* (Batch A consisting of 95, and Batch B of 119) in which the possibility of the presence of an infective fly had previously been excluded by feeding the insects on clean monkeys, were fed for three consecutive days on a guinea-pig infected with *T. rhodesiense*. After being starved for a day, each batch was fed on a healthy monkey until the fortieth day after the first feed on the infected animal. Neither of the monkeys became infected. Batch A, in which there were 42 flies still alive, was placed in the incubator, whilst Batch B, in which there were now 58 flies, was kept at laboratory temperature. The sudden change from the laboratory to the warm, dry air of the incubator proved very fatal to the flies in Batch A, and on the forty-third day only 6 were alive. From the forty-first to the forty-seventh day the flies in this batch were fed on a monkey, and from the forty-eighth day on a rat. The rat became infected on the fifty-third day, so that, allowing five days for the incubation of the disease in the animal, Batch A contained an infected fly on the forty-eighth day after the first feed on the infected guinea-pig, and eight days after being placed in the incubator. As the monkey died on the forty-seventh day, we are unable to state whether the fly became infective before the forty-eighth day. The four flies still alive on the fifty-third day were fed on four clean rats, and three of these became infected. The monkey on which Batch B was fed was still negative at the end of sixty days, when there were 38 flies alive.

EXPERIMENT 2.

This is really a continuation of the former experiment. The 38 flies in Batch B were placed in the incubator on the sixty-first day after the first feed on the infected guinea-pig, and were fed from the sixty-first to the seventy-fifth day on a healthy monkey (No. 443). Unfortunately the animal died on the seventy-sixth day, so that we were unable to determine with certainty whether any of the flies became infective. All the flies were dissected as they died, and one was found to harbour trypanosomes in the gut and salivary glands. Animals inoculated with the contents of these structures became infected with *T. rhodesiense*. As in our experience all flies in which salivary infection was observed were capable of infecting animals with the human trypanosome, we may assume that had the monkey (No. 443) lived a few days longer it would have been found to be infected.

In Experiment 1 the relative humidity of the air in the incubator was very low (36 per cent.), while in Experiment 2 the relative humidity was comparatively high (72 per cent.). In addition to confirming the view that a relatively high temperature is essential to the completion of the developmental cycle of *T. rhodesiense* in *Glossina morsitans*, and that the relative humidity of the atmosphere is not an important factor, these experiments afford more definite information. It is apparent that the earlier stages of the development of the parasite in the fly can occur at comparatively low temperatures (60° F.), and that trypanosomes can persist in this stage for at least sixty days. It is obvious that the developmental cycle of the parasite is not complete, since the flies are non-infective, and inoculation of the gut contents into susceptible animals is followed by negative results. For the completion of the cycle it is necessary for the temperature to which the flies are subjected to be raised to a considerable extent (75–85° F.).

It is interesting to note that the flies in Batch A (Experiment 1) became infective eight days, possibly less, after being placed in the incubator. This is three days less than the shortest incubation period observed in any of our successful transmission experiments, a fact which supports the view that the developmental cycle of the parasite in the fly had proceeded to a certain point at laboratory temperature (60° F.) before the insects were subjected to the higher temperature (80° F.) of the incubator.

The facts brought to light in this investigation afford a satisfactory explanation of some observations which have hitherto appeared to be contradictory. Kleine[2] was unable to transmit *T. gambiense* by *Glossina morsitans* on the Victoria Nyanza (altitude 3,700 ft.), whereas Taute[3] was successful on Lake Tanganyika at a lower altitude (2,680 ft.). Although we were unable to transmit *T. rhodesiense* experimentally on the Congo-Zambesi watershed in the cold season, nevertheless we found that a certain percentage of wild flies were infective. This apparent discrepancy may be explained on the assumption that the flies became infective during the warm season, and that a certain number survived into the colder season of the year.

CONCLUSIONS.

1. The developmental cycle of *T. rhodesiense* in *Glossina morsitans* is to a marked degree influenced by the temperature to which the flies are subjected. High temperatures (75–85° F.) favour the development of the parasite, whilst low temperatures (60–70° F.) are unfavourable.

2. The first portion of the developmental cycle can proceed at the lower temperatures, but for its completion the higher temperatures are essential.

3. The parasites may persist in the fly at an incomplete stage of their development for at least sixty days under unfavourable climatic conditions.

4. These observations afford an adequate explanation of the extremely long latent periods of trypanosomes in *Glossina* which have occasionally been observed by various workers.

5. The relative humidity of the atmosphere has apparently no influence on the development of the trypanosome in *Glossina morsitans*.

Ngoa, N. Rhodesia,
September 10th, 1912.

REFERENCES.

[1] Kinghorn, A., and Yorke, W., BRITISH MEDICAL JOURNAL, October 5th, 1912, p. 835. [2] Kleine, *Deut. med. Woch.*, No. 45, 1909. [3] Taute, reviewed in *Bull. S.S. Bureau*, No. 31, November, 1911.

SALVARSAN IN PERNICIOUS ANAEMIA.

BY

EDMUND HOBHOUSE, M.D., F.R.C.P.,

PHYSICIAN, SUSSEX COUNTY HOSPITAL, BRIGHTON.

As all evidence as to new treatment is of value, brief notes of the following case may be of interest. I believe it to be the first case treated on these lines south of the Tweed, and I publish it with the kind concurrence of my friends, Messrs. Dodd and Clarke, under whose care it was. I saw the patient first on May 23rd, 1912.

She had been very anaemic for more than a year and exceedingly ill in the previous summer, but had improved under large doses of arsenic, and been fairly well during the winter. Her blood picture in October, 1911, showed no signs of pernicious anaemia. On May 23rd she was very ill with daily fever up to about 101° F., almost unable to sit up or take nourishment, with very loud haemic murmurs all over the cardiac area; her colour was the characteristic lemon yellow. A film showed typical pernicious anaemia. On May 31st salvarsan 0.3 gram was injected intramuscularly. Within three days benefit was apparent, though local pain was severe for about a week. In four days the murmurs had almost disappeared, and the patient was much stronger. Blood examination on June 4th showed a distinct improvement.

On June 14th the improvement had continued, and the same dose was again injected in the buttock; this was followed by a sharp reaction; the temperature rose to 101° F. The patient looked exceedingly ill; the pallor and haemic murmurs returned, and she developed a large patch of dry pleurisy over the right back. This condition lasted a few days, when the fever slowly subsided and uninterrupted recovery set in. The blood examinations on July 2nd and 19th and August 7th (see table) showed a rapid change in the blood picture, and the change in the appearance of the patient was not less remarkable. She got quite a rosy look, and said she had not felt so well for years.

The blood reports speak more eloquently than any words, and I will only make two or three remarks further.

1. The rapid fall of temperature after the first injection suggests very strongly the destruction of some virus.

2. In another case I should certainly postpone the second injection as long as improvement was going on, for a week or two.

3. It is difficult to say to what the severe reaction after the second injection was due, possibly hypersensitization. I have come across pleurisy in another case after salvarsan.

4. It remains to be seen, I think, whether intravenous is equal to intramuscular injections where prolonged action is desirable, though the latter has undoubted advantages.

5. The results are so striking that though we know all cases do not react in the same way this treatment should always have a trial.

We have to thank Dr. Byrom Bramwell for sending us an advance copy of his paper, which I had the good fortune to hear at a meeting of the Association of Physicians in Glasgow in April, and also Dr. Galt for his kindness in taking much trouble about the blood examinations.

Date.	Red Cells.	Leucocytes.	Haemoglobin.	Colour Index.
			Per Cent.	Per Cent.
1. Oct. 3, 1911	1,425,000	5,550	30.0	1.0
2. May 24, 1912	800,000	9,050	18.0	1.0
3. June 4, 1912	976,000	9,150	36.0	1.7
4. July 2, 1912	2,372,000	6,900	63.0	1.19
5. July 19, 1912	3,792,000	8,300	90.0	1.0
6. Aug. 7, 1912	4,160,000	4,950	96.0	1.0
7. Oct. 8, 1912	4,704,000	6,300	110.0	1.05

Notes.

1. No anisocytosis or poikilocytosis and no nucleated reds; rather secondary anaemia due to toxic absorption.

2. Marked polychromatophilia and distinct though not extreme poikilocytosis and anisocytosis. Nucleated red cells common; 2 megaloblasts and 8 normoblasts counted with 200 leucocytes. The type is one of a true megaloblastic pernicious anaemia.

3. Marked polychromatophilia, slight poikilocytosis and anisocytosis; 4 megaloblasts and 1 normoblast in a very large number of fields.

4. Slight polychromatophilia. No anisocytosis or poikilocytosis. No nucleated reds after special search.

5, 6, and 7. Normal, except for the decreasing deficiency in red cells. The only point which is not absolutely satisfactory is that the colour index is still slightly above normal. This is possibly due partly to the fact that she went on taking largish doses of iron for some time.

Salvarsan 0.3 gram was injected on May 31st and June 14th.

THE SCIENCE COMMITTEE

OF THE

British Medical Association.

THE CYTOLOGY OF THE BLOOD IN PASSIVE IMMUNITY.

BY J. SHOLTO C. DOUGLAS, M.A., D.M.

(From the Pathological Departments of the Universities of Oxford and Birmingham.)

[ABSTRACT.]

A SERIES of figures obtained by determining the numbers of cells present in the peripheral blood of man and rabbits before and after the injection of various samples of serum have been analysed. The serums used were, in the case of man, normal horse, diphtheria antitoxin, and antistreptococcic, and for rabbits, normal and agglutinating rabbit and goat, diphtheria antitoxin (horse) and antistreptococcic (horse). As far as possible the figures obtained during the control periods were subjected to the method of least square, the resultant figure giving a measure either of any error due to the various manipulations to which the blood samples were subjected for securing the counts of corpuscles or of any variation in their numbers arising from day to day and due to natural causes. These may be termed respectively the "Mean Deviation of the Experiment," when the differences between counts on blood samples collected practically simultaneously from the same animal are considered, or the "Mean Daily Variation," where the differences observable from day to day are analysed. The advantage accruing from the knowledge of these is that the mathematical chances in favour of any alterations observed in the blood counts being due to the experimental injection and not to a natural error or variation can be ascertained.

In some instances, when the rabbits had been subjected to daily haemorrhage, the method of least square could not be used in the examination of the numbers of corpuscles, and another procedure had to be adopted. This consisted in comparing the average number of cells during the control period with the average number present on the days subsequent to the injections of serums. In the case of rabbits a fresh animal was used for each injection of any sample of serum, which took place by the subcutaneous, intravenous, or intraperitoneal routes. For man one individual served for all the inoculations of serums which were performed hypodermically.

The results of a consideration of the numbers of blood corpuscles in the peripheral blood during the control and during the experimental period may be summarized as follows:

1. The method of least squares can be satisfactorily applied to the analysis of the deviations and variations in a series of enumerations of the blood corpuscles, and of estimations of haemoglobin in the blood of man and of rabbits.

2. The "mean deviation of the experiment" for a series of estimations of haemoglobin and blood corpuscles in rabbits is independent of the hour of day and of small haemorrhages.

3. The "mean deviation of the experiment" is, in rabbits, greater for leucocytes than for red cells, and for red corpuscles than for haemoglobin, being on the average in this series of experiments 7.73 per cent. for leucocytes, 3.81 per cent. for red cells, and 1.28 per cent. for haemoglobin.

4. The "mean deviation of the experiment" was larger in a series of animals examined immediately they reached the laboratory than in another series which had been allowed sufficient time to become accustomed to their new environment.

5. The "mean daily variation" for the haemoglobin, red cells, and leucocytes was smaller in rabbits which had been kept some days in the laboratory than in those examined immediately they had been procured from the market.

6. The "mean daily variation" for blood cells becomes smaller as the day advances in the case of rabbits, and can

be reduced to 5 per cent. or less for the leucocytes and to 2 per cent. or less for the red corpuscles.

7. The "mean daily variation" appears to be independent of the hour at which the rabbits are fed.

8. The "mean daily variation" in the experiments on man was found to be smaller for both the leucocytes and the red cells at 3 p.m. than at noon.

9. The number of leucocytes in the blood of the man examined was greater at 3 p.m. than at noon, whilst the reverse was the case with the red corpuscles and the haemoglobin.

10. Evidence is adduced that in rabbits the leucocytes are more numerous at 2 p.m. than at either 10 a.m. or in the evening, and that this is independent of the time of feeding.

11. The increase in the number of leucocytes in man was proportionately the same at noon and at 3 p.m., when an artificial leucocytosis was produced.

12. The introduction of horse serum subcutaneously into man produces no change in the amount of haemoglobin or in the number of red corpuscles, but causes a leucocytosis.

13. The injection of antitoxin in man produced no specific recognizable alteration in the cytology of the blood, the rate of rise and fall in the number of leucocytes being the same whether a normal or the antibody containing serum was injected.

14. The introduction of antimicrobial (antistreptococcic) serum was followed by an absence of any leucocytosis in the case of man. This may depend either on a specific inhibitory action of some substance (? the "immune" body) in the serum, or on a physiological failure of the body to respond with a leucocytosis to an injection of serum which follows on a series of previous ones, each of which had succeeded in producing such a change, similar to the failure in the formation of antibody noted by Axel Jörgensen when an antigen was injected daily for a certain length of time.

15. The varieties of cells taking part in the leucocytosis as a response to serum injections in the case of man are (1) the polymorphonuclear and the eosinophilous group, and (2) the transitional and large mononuclear group, no change being demonstrable in (3) the lymphocyte group or (4) the mast cell group.

16. Daily small haemorrhages in rabbits—that is, 5 per cent. of their blood volume or less—produce a progressive diminution of equal amount in the haemoglobin percentage, and in the numbers of red corpuscles and white cells per cubic millimetre. This diminution is less than corresponds with the quantity of blood removed, the blood elements being partially regenerated. Very little sign of regeneration of the blood elements can be seen when 2 c.cm. of the blood are daily removed for eight or nine days.

17. No change could be detected in the haemoglobin percentage or in the numbers of red corpuscles in rabbits as the result of injecting rabbit, goat, or horse serums, whether normal or containing antibodies, by whatever route they were introduced.

18. No change could be demonstrated in the numbers of leucocytes in rabbits as a result of the introduction of rabbit or goat serums, whether normal or containing agglutinin, by whatever route they were injected, whilst a leucopenia was found to follow the introduction of an antimicrobial (antistreptococcic) serum, but whether as a response to some special substance (? immune body) present in this type of serum, or in response to the horse serum itself, is not altogether clear, since a suggestion of a similar response, though not great enough to allow of definite proof, may be present after the introduction of diphtheria antitoxin contained in horse serum. If the leucopenia should prove eventually to be in response to some substance specific to the immune serum, it might help to explain the poor results so often obtained when antimicrobial serums are used as curative agents.

THE city and University of Montpellier have decided to erect a monument in memory of the famous doctor of the medical faculty, François Rabelais. The model of the monument, which is to be executed by the well known sculptor M. Jacques Villeneuve, was exhibited in the Salon of 1912. Subscriptions may be sent to Dr. Levère, General Treasurer of the Paris Committee, 77, Avenue de Villiers, Paris.

Memoranda:

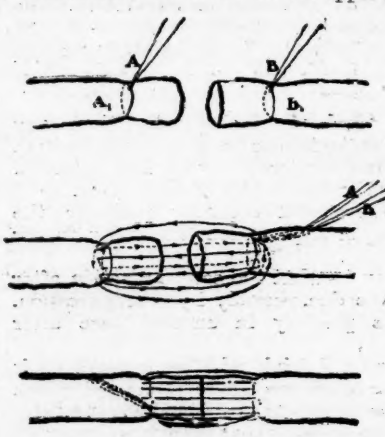
MEDICAL, SURGICAL, OBSTETRICAL.

AN IMPROVED METHOD OF TENDON SUTURING.

THE chief desiderata in the operation of tendon suturing are adequate strength and perfect smoothness of the site of union. The chief defect of the ordinary procedures is the violation of the latter detail involved by the presence of palpable knots and unsightly suture tags. The method to be described overcomes this defect and gives, I think, a bond as near perfection as possible.

The suturing material used is Japanese silk (Allen and Hanburys) for this happily combines great tensile strength with tenuity, a combination presenting obvious advantages in facilitating and giving smoothness of the bond.

Two long ligatures, A and B—one for each piece, proximal (A) and distal (B), of the tendon—are tied around the two portions (A_1 and B_1) of the tendon near the line of section, and knotted, not in the centre but near the side on its upper aspect. One end of the proximal ligature (A) is, or both ends thereof are, threaded on a curved needle. This needle is passed on the near side of the circular ligature (A) opposite its knot through the tendon (A_1) to its under surface; then below the line of section to the far side of the distal circular ligature (B); thereafter up through this portion (B_1) of the tendon to the upper aspect. It is now passed back again across and above the line of section to the starting point (A_1), and the penetrating process repeated as just described; and so on till the upper and lower surfaces of the tendon are occupied and the line of section bridged by the lengthwise sutures.



The points at which the needle leaves and enters the two pieces of the tendon are always corresponding, but in traversing the tendon the needle is given an oblique direction so as to emerge to one side of the preceding longitudinal suture.

When this vertical longitudinal suturing has been carried from one side of the tendon to the other the needle is made to emerge laterally, and the investing suture is effected now as before, but in the horizontal plane. Two or more of these are inserted as required. Thus the line of section is bridged above, below, and laterally by the silk—so far much as in one of the usual and best methods. The chief improvement is now to be effected, and this is carried out as follows. It consists essentially in burying the knots and free ends.

If one thread has been used in the needle for the above procedure, this thread is made to emerge finally near the proximal knot. The two free ends of the proximal ligature (A) are thus brought together again; they are knotted, then threaded on the needle, which is made to penetrate the tendon in the immediate vicinity of the knot, and carried in a longitudinal direction for a little distance, and preferably in a wave-like manner, this so as to prevent the silk afterwards being drawn back towards its knot if that were possible when the tendon was put into action. After traversing the tendon these free ends are made to emerge therefrom at one side. In the latter manner the two ends of the distal ligature (B) are also similarly treated. These four ends, two emerging from either portion of the tendon, are now pulled upon and then severed by a knife flush with the surface of the tendon from which they are emerging.

If, however, the needle originally be threaded with both free ends of the proximal ligature (A) these finally are brought through the distal piece (B_1) of the tendon to appear in the region of the distal knot. The two ends of the proximal (A) and distal (B) ligatures are then knotted, the four ends threaded on a needle, and buried and cut in the same manner as before.

Whether the needle at first carries one or two threads will depend on the thickness of the silk; if a thick size be considered necessary the threads will naturally be more bulky and clumsy, but if a thin size will suit the double thread may be used if desired.

The above procedure may be somewhat modified by using one of the two threads of the one ligature (A) for the vertical suture and one of the two threads of the other ligature (B) for the horizontal suture, and then arranging

these threads so that a final knot is made on either side by one free end of each ligature. The free ends will then be buried in the usual way. This arrangement may increase the strength of the union if this, indeed, is necessary.

The ligatures in this method are so fine and the burying process of such a nature that the knots are not palpable nor perceptible, and of course the free ends do not appear. As perfectly smooth a surface as is practicable can be obtained by this means, the attainment of a perfect band being merely a matter of practice, whilst the method has the great advantage over all others that I know of in that there are no free ends left and no palpable knots. Thus union is not only extremely strong, permitting severe strain and immediate movement (active and passive) if required, but quite smooth, so that when the operation is done well the original site of section may elude any but close scrutiny.

G. S. THOMPSON, F.R.C.S.Eng.,
Late Casualty House-Surgeon, St. Mary's Hospital, London, W.
Kimberley, S.A.

OBSTRUCTED HERNIA IN AN INFANT.

ON November 21st, 1909, a child aged eleven months was sent to me. It had been vomiting incessantly and looked very ill. There was a very tense swelling in the right inguinal region, dull on percussion and irreducible. No impulse was found. I took the case to be one of strangulated hernia, although the bowels had been open that day after an enema.

An incision was made over the hernia, and on opening the sac a knuckle of very congested small intestine was seen. This felt almost solid. There was no difficulty in drawing down gut from either side of this loop, and no line of constriction was evident. On pressing the gut between the finger and thumb the apparent solidity of the loop was found to be due to a mass within it, which easily broke down on further pressure. The gut was then easily returned and the operation completed. The child made an uneventful recovery.

The mother had weaned the child on November 19th, and had since fed it on bread-and-butter. Evidently an undigested mass of this had got into the hernia, and could not get through it.

LEIGH DAY, M.D., B.Ch.Oxon.,
Assistant Surgeon, Essex County Hospital.

NEURALGIA IN A STUMP TWENTY-SEVEN YEARS AFTER AMPUTATION.

I WAS interested to read the report of a case of late neuralgia in an amputation stump, in the Epitome of Current Medical Literature for November 16th. I was called to a patient suffering from cerebral haemorrhage, which produced loss of power in the right arm and some thickening of speech. He was a stout, robust man aged 72. The right leg had been amputated above the knee twenty-seven years previously owing to a compound fracture of the femur. He had complained for some years of pain in the stump, more often at night, and frequently rubbed it to relieve the pain. On rising and walking about the pain disappeared, while in bed in the horizontal position it was unbearable. It was felt mostly on the posterior aspect of the thigh.

No neuromata nor any points painful on pressure could be made out. The skin was freely movable over the end of the bone, and was nowhere adherent. Examination of the urine failed to show any abnormal constituents.

I am inclined to the view that arterio-sclerosis causing anaemia of the nerves may have been the cause, and the occurrence of cerebral haemorrhage seemed to corroborate this.

C. J. B. BUCHHEIM, M.B., Ch.B.Glasg.
Caldercruix.

HERR MARTIN BRUNNER, the proprietor of an art gallery in Nürnberg, has founded a fund, to be called the Martin Brunner Fund, with a sum of M. 50,000 (about £2,500), for the purpose of encouraging research on cancer. An annual prize will be given for the most important work in connexion with the scientific investigation of cancerous disease and its prevention. The prize in 1913 will be £20, but in 1914 and subsequently it will be increased to £75 or £80.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

SALISBURY GENERAL INFIRMARY.

TWO CASES OF LOCOMOTOR ATAXY TREATED BY SALVARSAN.

(Under the care of W. W. ORD, M.D.Oxon.)

CASE I.

E. R., a railway signalman, aged 44, was admitted on April 20th, 1912. He was sent in by Dr. Thornton, of Salisbury, who had had him under observation for some weeks. Twenty-one years previously he had suffered from ulceration over both shins, which showed deeply pigmented, symmetrical, somewhat scaly scars. No history of other illness, except influenza. He denied having suffered from any venereal disease. Five months before admission he had an attack of "gastritis," with vomiting. Eight weeks before admission he began to suffer from coldness and numbness in the feet, and two weeks later the same conditions appeared in the hands. Progressive weakness in the legs and arms, with unsteadiness in walking, developed, and he was obliged to give up his work.

On admission he was quite unable to walk, though he could stand with difficulty. He complained of coldness, numbness, and tingling in the extremities, and of paroxysmal gastric pains. The knee-jerks were absent; sensation in the feet was almost absent, and on trying to walk he said he had "a feeling as if walking on cotton-wool." The right pupil did not react at all to light, the left only sluggishly. Romberg's sign was present. Wassermann's reaction was negative.

On May 16th 0.3 gram of salvarsan was injected. By May 26th the gastric pains had disappeared, and sensation in the feet was returning. Both pupils were acting sluggishly to light, and the left knee-jerk could just be elicited. On June 10th a second injection of the same strength was given, and the improvement continued. On June 25th he got out of bed for the first time, and was soon able to walk a short distance without unsteadiness.

He left hospital on August 3rd. Both knee-jerks were then present, the right not so active as the left; both pupils reacted quite actively to light; sensation in the feet was normal; he had had no return of the gastric pains, and he could stand with his eyes shut. After a short stay at a convalescent home he applied for leave to resume work, was passed by the surgeon representing the railway company, and is now fulfilling his duties.

CASE II.

F. G., a labourer, aged 50, was sent in by Dr. Morgan of Gillingham, on July 20th, as a case of locomotor ataxy. He had been under observation for a year. On admission he complained of giddiness, convulsive attacks, with almost total unconsciousness, coming on at any moment, and of loss of power in the legs for five months. He had had syphilis in 1887, and had three to four months' treatment with "vapour baths." In 1905 he had Malta fever, and recovered after four months' treatment in Valetta Hospital. About six months ago he began to notice that he had trouble in speaking, and developed a sensation of "pins and needles" in both hands and arms, but no abnormal sensations in legs.

On admission he could only walk with difficulty, with the usual ataxic gait. Romberg's sign was well marked, the knee-jerks were totally absent, sensation was diminished in both feet, the pupils did not react to light, speech was slow, and articulation difficult. There were no gastric or other pains.

He was given three intramuscular injections, each of 0.5 gram of neo-salvarsan, on July 27th, August 2nd, and September 1st. Improvement commenced almost immediately, and was steadily progressive. He was discharged on September 4th, all symptoms from which he was suffering on admission having disappeared.

I saw him a month after he had left hospital. He was then feeling quite well, and had resumed his ordinary work.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BIRMINGHAM BRANCH.

PATHOLOGICAL AND CLINICAL SECTION.

Friday, November 1st, 1912.

Mr. GEORGE HEATON in the Chair.

Renal Infantilism.

DR. PARSONS showed two cases. He said infantilism was a condition of retarded development in which the growth of the sexual organs was particularly backward. It had been traced to numerous causes, the imperfect functioning of various organs, or the presence of different diseases. By these means subgroups had been described. The cases shown were examples of a type apparently due to a perversion of the renal functions. The characteristic features were dwarfing of mind and body, associated with polydipsia and polyuria. The polyuria was extreme and the urine had the characteristics of a granular kidney of adults. Cardio-vascular symptoms might or might not be present. A few cases had been collected which showed no organic renal change, but a diabetes insipidus; in these the symptoms were less severe.

CASE 1.—Girl, aged 4½. Polyuria and polydipsia since birth; grew little, sat up late: fifth of six children, others normal; height 2 ft. 6½ in.; weight 21 lb. Physical and mental development of a child of 2 years. Pale, cyanosed, wasted. No genu valgum. No evidence of syphilis. Heart shows some hypertrophy of left ventricle. Arteries normal. Oedema variable, sometimes of face, feet, legs, vulva, with ascites. Urine, amount varies with oedema; specific gravity 1001.4; faint haze of albumen, occasionally absent; no casts; urea 0.8 per cent.

CASE 2.—Boy, aged 5½. Polydipsia and polyuria, probably since birth; marked since 2 years; weight at 2 years 16 lb.; sixth in family of eight; others normal. Physical and mental development 2 years; weight 16½ lb.; height, 2 ft. 3½ in. (measurement of a child 12 months old). Characteristic face; hands, feet and legs cyanosed and cold. Genu valgum; curved tibiae; enlarged radial epiphyses; rickety gait; heart, forcible apex beat in nipple line; brachial arteries thickened; urine very pale; specific gravity 1004; very faint haze of albumen; no casts. No evidence of syphilis.

The polyuria in these cases of renal infantilism produced a wasted, sallow, wrinkled facies, which was very characteristic.

Mr. GEORGE HEATON, Dr. SAWYER, Dr. WYNN, and Dr. EMANUEL discussed the communication, and Dr. PARSONS replied.

Progressive Lenticular Degeneration.

Dr. SAWYER showed a man, aged 36, who was suffering from this affection. The disease had been first described as progressive lenticular degeneration by Dr. Kinneir Wilson, in *Brain*, March, 1912, and he had collected twelve examples of the malady. The pathological anatomy was a bilateral softening in the lenticular nucleus, especially in the putamen, associated with a glial overgrowth which afterwards broke down. There was also a multilobular cirrhosis of the liver. Dr. Kinneir Wilson considered that the lenticular degeneration was caused by a toxin originating in the liver; but Dr. Sawyer thought that the toxin was probably of alimentary origin, and that it caused both the cerebral degeneration and also the hepatic cirrhosis. He thought that the case he showed confirmed this view, for the disease had been present for seventeen years. The characteristic symptoms of the disease were rigidity of the voluntary muscles, generalized tremors, dysarthria, dysphagia, emotionalism.

The patient was a well-developed man of 36, and the first symptoms of the disease had commenced at the age of 19 years. As a boy he was extremely brilliant, winning many prizes at school. The first symptoms were tremors in the right arm and leg and an alteration in speech. All the voluntary muscles of the body were extremely rigid, and the rigidity did not pass off during sleep. On account of the rigidity there was great difficulty in commencing any movement, but when the rigidity had been overcome the movement was performed rapidly. When the patient got up from a chair, it was a few minutes before he could commence to walk; often it was difficult for him to gain his equilibrium, but this was obviously due to the rigidity of the muscles. There was marked retropulsion. He was so rigid that when put into bed he would be bent up for a little time, his head neither touching the pillow nor his feet the bed. The face was wanting in expression, and suggested Parkinson's mask in appearance. The mouth was often kept open and saliva dribbled from the angles of the mouth. Mastication was very slow, but there was no dysphagia. The eyes appeared prominent because of the contraction of the eyelids. The arms and hands were held in the position characteristic of paralysis agitans. There was a generalized tremor which often became quite riotous. Dysarthria was very marked, the speech being so drawn out that it was difficult to understand what he said. There were spasmodic contractions but no contractures. He was very emotional and often fell into severe fits of temper, so that he would strike people who went near him. There was usually time to get out of his way, as it took him some time to commence any movement. The reflexes were normal, the abdominal reflexes being extremely brisk. Sensation was normal.

The case differed in several important points from those described by Dr. Kinneir Wilson. The patient was older than most of the other cases, the duration of the disease was very much longer, there was only slight emaciation, there were no contractures, the severity of the symptoms varied considerably from day to day, and the dysarthria was of a different type. Remarks were made by Mr. GEORGE HEATON, Dr. RUSSELL, Dr. STANLEY BARNES, Dr. WYNN, and Dr. PARSONS. Dr. SAWYER, in reply, said that as far as he could ascertain, only the voluntary muscles were affected by the pseudo-spasticity, the extrinsic muscles of the eyeball escaped. There was no difficulty in swallowing, but mastication was very slow. There were no urinary symptoms. The patient could read quite easily and took an intelligent interest in current events, but it took him a long while to write a word, because of the rigidity of the muscles, but the letters were well formed. Sometimes the tremor would interfere with his writing. Dr. Sawyer thought the situation of the lesion in the cases of polio-encephalitis referred to by Dr. Parsons would have to be considered to be in the lenticulo-rubral tract, and not in the cerebello-rubral. As cirrhosis of the liver was undoubtedly due to a poison reaching the organ through the portal vein, it seemed legitimate to presume that in this case of lenticular degeneration with hepatic cirrhosis the toxin reached the organ in the same way.

Congenital Hypertrophic Stenosis of the Pylorus.

Dr. EMANUEL showed two patients whom he had treated successfully for this disease. Mr. GEORGE HEATON, Mr. MILLS, Dr. SHOLTO DOUGLAS, and Dr. PARSONS discussed the cases, and Dr. EMANUEL, in reply, said that he had had no personal experience of the surgical treatment of these conditions, but, of course, many cases were cured in that way. He considered, however, that all these cases should first be treated by medical means, and that when the patient did not respond to this treatment, the surgeon should be asked to perform a gastro-enterostomy. This meant that the operation had to be performed on an emaciated infant, and one who could only with very great difficulty stand such a severe operation. He agreed that these children did not die from the atresia, but from some septic condition, such as gastro-enteritis. The septic condition was shown by variations in the temperature, and such patients were most unsuitable for operation. In most of the cases he used lavage, but it was frequently very difficult to remove the clots from the stomach through the catheter which was used. He considered that the indication for lavage was a sudden increase in weight of about 3 oz., for this showed that the milk or food the child had taken still remained in the stomach. He had tested about twelve normal stomachs of infants with water, and he had not found that the water did not pass through the pylorus in any. Hypertrophic stenosis of the pylorus was not congenital, for it occurred soon after birth, and in his opinion it was entirely due to spasm of the pylorus. He had not tested for hyperacidity in any of the cases which had come under his care.

Endothelioma of the Undescended Testis in a Male Pseudo-hermaphrodite.

Dr. THOMAS WILSON reported a case:

The patient was aged 29, and when seen in February, 1910, there was found to be a fairly defined, rounded, tense, elastic tumour, extending from the pubes upwards to 2 in. below the umbilicus. The patient had been brought up as a woman, the voice was masculine, and there was rudimentary beard and moustache. The hair of the head was nearly 3 ft. long. The figure was markedly feminine, the breasts small, and the nipple areolae well formed. The pubic development was female. The labia majora were thin, and between them was a cleft, in the anterior portion of which there was a penis-like organ 2½ in. in

length by ¾ in. in thickness, with a well-marked glans. About 1 in. further back there was the opening of a mucous canal. In the right labium majus was a soft, elastic, freely movable, somewhat tender body as large as a hazel nut, which could be pushed into the inguinal canal. The urethra opened on the lower surface of the penis. On rectal examination a mass about the size of a cocoanut was found in the pelvis. The patient had menstruated fairly regularly. The pelvic tumour was partially removed by operation with great difficulty on account of the inseparable adhesions. A fleshy cord passing through the right inguinal canal to the swelling in the labium majus was pulled up and removed. The patient rapidly wasted, and died one month later. The fleshy cord contained a peritoneal pouch continuous with the general peritoneal cavity. At the distal end was an atrophied genital gland measuring 1 in. by ¾ in. Section of the gland showed a stroma of connective tissue in which there were numerous tubules which resembled the seminiferous tubules found in undescended testes. The growth was composed of cells of very various forms and sizes, and the cells in some parts of the growth appeared to proliferate from one side of the wall of the vessels. In the inguinal region the growth appeared to be spreading along the surface of the peritoneum.

In reply to Mr. GEORGE HEATON, Mr. FRANK BARNES, Mr. MILLS, and Dr. SHOLTO DOUGLAS, Dr. THOMAS WILSON said that the patient was evidently a complete pseudo-hermaphrodite of the male variety. The tumour was very rapidly growing, and it contained a large amount of haemorrhage. He maintained that it was an endothelioma, which, after all, was only a variety of sarcoma. A sub-committee was appointed to examine and report upon the nature of the tumour.

Lipoma of Thigh.

Mr. FRANK BARNES showed a large lipoma which he had removed from the inner side of the thigh of an old lady of 60. The tumour was pedunculated, and reached almost to the floor when the patient stood up. The skin over the lower portion had, two or three days before removal, become necrotic, and this caused the patient to seek the help of a surgeon after twenty years of growth. The tumour on removal weighed 30 lb.

BATH AND BRISTOL BRANCH.

THE second ordinary meeting of the session was held at Bath on November 27th, Dr. ROXBURGH, President, in the chair. Dr. R. WATERHOUSE showed a specimen of a *Brain containing Cysticerci cellulosae*. Dr. WATERHOUSE read a paper on *Aleukaemic leukaemia*, which was discussed by the PRESIDENT and Dr. MICHELL CLARKE. Dr. T. WOOD LOCKET read a few notes on the value of *Horse serum in general practice*, and the PRESIDENT, Dr. MICHELL CLARKE, and Dr. NEWMAN NEILD joined in the discussion which ensued. Dr. W. P. KENNEDY described some phases of *Fatigue*, and the PRESIDENT suggested others.

SOUTHERN BRANCH.

AT a meeting held on November 27th, Dr. F. W. JOLLYE, President, in the chair, Mr. CHILDE read notes of a case of malignant adenoma of the cervix uteri, and showed the specimen; also notes of a cystic hygroma of the neck, with specimen and photographs. Dr. W. P. PURVIS (Southampton) read notes of a case of duodenal ulcer, in which a gastro-colic fistula followed gastro-jejunostomy. A short discussion followed each paper, and the authors were thanked and congratulated on their result.

THE thirty-fourth Congress of Balneology, which this time forms a section of the fourth International Congress of Physiotherapy, will be held at Berlin in March, 1913 (26th to 30th), under the presidency of Professor Brieger. All communications relative to the congress should be addressed to the General Secretary, Geh. San.-Rat. Dr. Brock, Thomasiusstr. 24, Berlin, N.W.

A MEETING of the Executive Committee of the Dublin Centre of the St. John Ambulance Association was held on November 29th. Mr. Justice Ross was in the chair, and a resolution was passed expressing the deepest sorrow of the committee on account of the death of their esteemed vice-president, Dr. A. H. Benson. Arrangements were made for the formation of a first aid class for women after Christmas, for a first aid class for men, and for a home nursing class for women. Dr. J. Lumsden and Dr. Walter C. Stevenson were re-elected officers of the committee for the ensuing year.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

Monday, December 9th, 1912.

Sir W. WATSON CHEYNE, President, in the Chair.

Intestinal Stasis.

MR. W. ARBUTHNOT LANE opened a discussion on intestinal stasis. He employed the term to indicate such an abnormal delay in the passage of the intestinal contents through a portion or portions of the gastro-intestinal tract as resulted in the absorption into the circulation of a greater quantity of toxic or poisonous materials than could be treated effectually by the organs whose function it was to convert them into products as innocuous as possible to the tissues of the body. When these poisons and their products of conversion existed in excess in the circulation, they produced degenerative changes in every tissue and organ in the body. Probably the textures of those organs which converted, carried or eliminated them suffered most. Probably the liver was the most important converter of the poisons, and the kidneys and skin were the chief excretors of the products of conversion. If the several operations on the drainage scheme had done nothing more than demonstrate the damage done by these poisons, the remarkable power of repair which the several tissues of the body exhibited on being freed from their malign influence, and the extraordinary improvement in the functioning of the organs of the body after operation, they had been fully justified. They had done more, since they had thrown light upon intestinal conditions which had simplified their treatment materially, and had put them upon a definite mechanical basis. Pigmentation of the skin, and the cold blue clammy hands, rapidly improved on eliminating the source of the poison. In Bright's disease, which was merely a product of chronic intestinal stasis, the occlusion of the large bowel was followed by extraordinary improvement in functioning of the kidneys. The great difficulty in intestinal stasis was that cases were recognized too late to interfere. Cancer of the breast or of the ducts of the liver or of the pancreas were all products of chronic intestinal stasis in the first instance, and were examples of conditions which might have been averted if the stasis were recognized early. The influence of these toxins on the nervous system was also very marked. He had seen a large adenoma of the thyroid subside after removal of the large bowel and typical symptoms of exophthalmic goitre rapidly and permanently disappear. The poisons might be absorbed from any part of the bowel and might be supplemented by poisons from the secondary results of their absorption such as from suppurating gums. The primary absorption from the intestine varied in importance not with the degree of stasis, but rather with the unfitness of that portion of the bowel to deal with organisms and poisons to which it was unaccustomed. In many cases the bulk of the absorption took place from the small intestine and not from the large, but the stasis in the small bowel was secondary to stasis in the large. The good results which followed short-circuiting and the disconnexion or removal of the large bowel were due largely to the fact that evacuation of the small intestine was facilitated. The point of greatest difficulty in the passage of material along the tract was in the last few inches of the ileum.

Mr. H. PLIMMER spoke of the appearances found *post mortem* in animals. Constipation was less common in them than in human beings, but enteritis commoner. Rickets and constipation were closely associated, the latter causing one symptom, anæmia. Suppuration of the gums was nearly always found—a condition he regarded as causative. Dr. ALFRED C. JORDAN showed many radiograms illustrating the points emphasized by Mr. Lane. No fact had become so firmly borne in upon him as that of the interdependence of the several parts of the gastro-intestinal tract. Mr. H. W. CARSON believed that infection played no part in the formation of the adhesions which produced kinks. Diagnosis between ileal kinks and appendicitis was difficult, and in operations for the latter free incision of the abdominal wall and good exposure of the parts was necessary. In ileal kink the caecum should be

fixed as well as the band divided. Mr. H. H. Sampson spoke of the relation of intestinal stasis to *B. coli* infection of the urinary tract. In cases of intractable bacilluria with subacute exacerbation, where there was probably unilateral or bilateral pyelitis, he suggested that intestinal stasis was not only the primary cause, but the essential factor perpetuating the condition. Dr. R. Murray Leslie said that in his experience the results of the operation were good, that it was surely better in advanced cases, when simple remedies had failed, to have recourse to this radical cure for intestinal stasis, than to leave the patient in a miserable state of suffering and chronic invalidism, rendering life almost insupportable and so lowering the resistive power of the tissues as to endanger life from intercurrent complications or otherwise.

Further discussion was adjourned until December 16th.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Wednesday, December 4th, 1912.

Mr. J. M. Cotterill, President, in the Chair.

Malingering.

Dr. Byrom Bramwell, opening a discussion on malingering, defined a malingerer as one who deliberately, wilfully, and knowingly protracted an illness for various purposes. Unconscious malingering did not exist. There had been a great increase in its frequency since the Workmen's Compensation and the Employers' Liability Acts. For example, before these Acts he had predicted a great increase in frequency of cases of concussion of the spinal cord in colliers, and that prophecy had been verified in recent years; and most probably there would be a further great increase if the National Insurance Act should come into full operation. There were varieties of malingering, and some of these were closely allied to valetudinarianism: (1) Healthy persons who simulated a disease or injury were rare, as in accused persons, schoolboys, and those desiring to escape military service. (2) Cases of previous disease or defect before an accident, where the patient might be conscious or unconscious of this previous condition. These cases sometimes raised the question of the relation of trauma to disease, and were often very difficult. (3) Cases of exaggeration of symptoms, in some deliberate but in many unconscious. The latter were really cases of valetudinarianism, and were the group most likely to give trouble under the Insurance Act. These patients simply did not get well, either until the question of compensation was settled or so long as they were in receipt of compensation. In some of those cases it was very difficult to distinguish between partial malingering and pure valetudinarianism. His own experience had been chiefly in nervous disease, but cases also occurred in ophthalmic work, in skin diseases, and in surgery. The diagnosis must be based on careful medical examination and opinion, and also on collateral non-medical evidence. Even in many non-compensation cases, and especially in nervous cases, it was often hard to differentiate functional from organic disease. There were certain positive signs of organic disease, such as localized muscular atrophy or nerve paralysis, bedsores, loss of knee-jerks, exaggeration of knee-jerks with the Babinski sign and ankle-clonus, paralysis of the sphincters, optic atrophy, absence of electrical reactions (though a paralysed muscle might give a faradic reaction). Various traps might be set for the patient. In certain cases prolonged observation and repeated examination were necessary. He outlined a procedure advisable for the detection of malingering under the National Insurance Act: (1) Exhaustive medical examination by the medical attendant (panel doctor); he did not think fellow-workmen would be of much use in this connexion. (2) In doubtful cases, examination by a specialist not on the panel, who would be independent of the result and whose opinion should be unbiassed. (3) If necessary prolonged observation in hospital. (4) Time limit in cases of neurasthenia and other conditions in which there was no evidence of organic disease.

The President spoke of the effect of benevolent legislation in decreasing the self-respect of injured workmen. Dr. George Mackay said that the detection of malingering was perhaps easier in eyework than in other branches, and described various tests and traps available in cases of alleged blindness in one eye. Sir Thomas Clouston showed the importance of the general constitution, especially in nervous people who furnished most of these cases. He had known cases of insane persons who deliberately exaggerated their insane symptoms for various purposes. Dr. Bowie called attention to the importance of preventing malingering, which would, under the Act, probably cost the State about £1,000,000 per annum. This would be done if the beneficiary were required to pay a portion of his sick benefit. Such a plan was already in operation in Denmark and elsewhere. Mr. Cathcart said that in cases of injuries of muscles, joints, and bones, it was important to let the patient tell his own story; also to observe the muscular development of the limb alleged to be disabled. Dr. Edwin Bramwell said that hysteria and malingering were two distinct conditions. There were cases of traumatic hysteria, as there were of traumatic organic disease, and the former were just as much deserving of compensation as the latter. Dr. Brock said there was no essential difference between hysteria, neurasthenia, and malingering, and the patient was to some extent to blame in all three. Dr. McKendrick maintained that unconscious malingering was possible. Dr. J. V. Paterson said that in eyework there was little discrepancy in expert medical evidence. In giving precognitions, a thorough examination often revealed genuine cases which slipshod methods overlooked. It was essential that the law officer should be assisted by a medical assessor, and that the latter should make an independent examination. He had nothing to say against the trade unions, but he condemned the methods of low-class speculative lawyers who worked up cases. The doctor should never collaborate with the lawyer, or attempt to make the best of a bad case. In his experience cases of gross malingering were rare, and the great bulk of his cases were of exaggeration where there was a genuine injury, and a sincere belief in the connexion of the injury to the state of vision. A fixed scale of compensation for identical cases would save much unnecessary litigation. Dr. Sym doubted if a tariff of compensation were practicable. He advocated the punishment of gross cases of malingering. Dr. Chalmers Watson said that some co-operation between the insurance companies and the patients was desirable. Effective treatment carried out immediately after the accident would prevent many cases of valetudinarianism. Dr. Pearson pointed out the frequent serious discrepancy in medical evidence, not merely in matters of opinion, but in questions of fact. This was not creditable to the profession. Dr. Dickson (Lochgelly) said that his experience in mining practice had taught him to regard every case of accident a malingerer until proved not so, and described the deplorable change of *morale* in the Fife miner since the Compensation Act. Dr. Bramwell replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

Section of Surgery.

Friday, November 29th, 1912.

Mr. A. Blayney in the Chair.

Dioradin in Surgical Tuberculosis.

Mr. R. Atkinson Stoney described the results of 28 cases of surgical tuberculosis treated by injections of dioradin. He had reported on 14 of these a year ago, since which 9 had received a second course of injections. He divided the cases into two classes, according as to whether they were complicated by sepsis or not. There were 15 non-septic cases, and of these 7 resulted in apparent cure, 4 were greatly improved and would probably end in cure, 2 were somewhat improved, 1 was not improved, and 1 which improved greatly for a time died later of tuberculous meningitis. In the septic cases there were 4 apparent cures, 2 were greatly improved and will probably result finally in cure, 1 was somewhat improved, and 5 were not improved, and 1 which improved died later of acute nephritis. Altogether there were 6 cases without apparent improvement; 5 of them were all practically hopeless cases, and could not be expected to respond to any treatment, but 1 case of epididymitis was a distinct failure, as it was discovered early, but progressed steadily and rapidly in spite of

injections, and was found at operation to be actively spreading. Having given over 3,000 injections, he could say that he had never seen them do any harm or give rise to any discomfort even if given subcutaneously instead of intramuscularly. The following were the conclusions that might be fairly drawn from these cases: (1) Dioradin injections are not a certain cure for all cases of tuberculosis; in some cases they will produce a cure more rapidly and more certainly than any other treatment. (2) Early cases of joint disease treated by injections, combined with ordinary methods of rest, good food, etc., will recover more rapidly and more surely than when treated without the injections. The same is probably true of glandular and other surgical affections. (3) In advanced cases with abscess formation, if injections are started before or at the time the abscess is opened, it will usually heal rapidly and the tuberculous process apparently come to an end and a cure result in a large proportion of cases. (4) Finally, in those cases complicated by septic infection, dioradin injections will generally reduce the temperature to normal, increase the appetite and weight, and lessen the amount of discharge, and in some cases even bring about a final cure, as in three of the cases reported in this paper. In reply to observations on his paper, he said that he had only treated 5 cases of phthisis with dioradin, and the results were not very satisfactory or definite. One remarkable case in which there were complications was given injections of dioradin, and the patient increased nearly a stone in weight, the sputum was reduced, and the cough relieved. He was not, however, sure how much of the improvement was due to the relief of the complications and how much to the improvement in the lungs. With regard to the question as to the advantage of radium in the preparation, test tube experiments were made with and without radium on tubercle bacilli, and as well as he remembered the destruction with the radioactive solution was three times as fast as that with the non-radium solution. The active principle in the solution was not iodoform but iodine. There was only one outpatient treated, and in that case injections were only given every second day. Many of the patients had previously been in hospital for periods from three to fourteen months without improvement. He had not formed any definite opinion as to cases that had previously been treated with tuberculin, but one of his cases—complicated with tuberculous cystitis—had been treated with tuberculin, and at first showed marked improvement; however, in spite of the continuance of the tuberculin injections she became worse, and dioradin injections were tried, and the patient got steadily better, and was now practically well. In other cases that had been treated previously with tuberculin the results of the dioradin treatment had been much the same as in those that had not received tuberculin.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

AT a meeting on December 4th, Sir ANDERSON CRITCHETT, President, in the chair, Dr. LEONARD HILL, in opening a discussion on *The physiology of the intraocular pressure*, recorded some investigations undertaken by himself and Dr. Flack in conjunction with Mr. Thomson Henderson. They found that the pressure varied within fairly wide limits, and directly with the arterial pressure. In a previous investigation the speaker and Dr. Flack found that the pressure of the cerebro-spinal fluid and the pressure of blood in the cerebral veins was the same, and the two varied together. Various workers had made investigations, and it was found by viewing the retinal vessels with the ophthalmoscope that the flow ceased in them when the pressure reached that of the general arterial blood. Dr. Hill and his colleague punctured the cornea of a cat, and then on gently pressing the abdomen the iris on the same side immediately burst into haemorrhage; all the capillaries allowed the blood to escape, and that came off every time. The explanation was that the normal aqueous pressure was exactly counterbalancing the capillary pressure. The intraocular tension was said to be due to the elasticity of the lens, but it had no elasticity, for when removed it was a soft, pudding-like body. In the act of accommodation the muscle contracted, but continued to be of the same volume as the uncontracted muscle; on contraction it really moved inwards, as described by Thomson Henderson, and allowed the fluid to pass from in front of the lens either into the spaces of the ciliary body or into the spaces of the cribriform ligament and into the suprachoroidal space. Professor STARLING, F.R.S., was not in close agreement with some of the interpretations which Dr. Hill placed upon the facts stated. The intraocular fluid was at considerable pressure, so there must be resistance against its flow from the eyeball. But if the pressure there was in consequence of the pressure of the blood in the vessels, the pressure of the intraocular fluid must go up with the rise of pressure in the vessels. When the carotid or subclavian artery was obstructed, cutting off the blood supply from the eyeball, the pressure came down; and it went up again in proportion to the amount of blood one allowed to enter those vessels. The blood pressure must be higher in the vessels all the way along than outside and than the intraocular pressure, and the quicker the rate of flow through the system of vessels concerned the greater must that difference of pressure be. There was no reason for saying it was impossible for a difference of pressure to exist between the capillaries and the fluid outside, but there was every reason for assuming there must be a difference. One could not know how much fluid came out until one ascertained what was the rate of transudation. If the pressure remained constant that rate was the rate of absorption. It was impossible to measure the pressure in the capillaries under normal conditions. By increasing the pressure of the intraocular fluid one brought up the pressure in the capillaries towards that in the arteries. At some future time it might conceivably be shown that the cells coming from the ciliary processes might act as regulators, but at present there was no evidence that they acted otherwise than as guiding and strengthening the filtering membrane. In regard to the relationship of the capillary to the venous pressure, he had never been able to understand Dr. Leonard Hill's position. Mr. PRIESTLEY SMITH (Birmingham) said the normal pressure in the human eye certainly varied in different people and in the same person at different times, but what would be a fair average? A pressure of 60 mm. which had been mentioned would surely mean that the person had glaucoma. He agreed that the intraocular pressure was equal to the venous pressure at one point—that is, where the blood left the eye—but at every other point the intraocular pressure was lower than the blood pressure. As Professor Starling said, there could not be equality of pressure, or there would be no movement. Every probability seemed to be against Dr. Hill's view on that point. Further discussion was postponed.

SECTION OF ANAESTHETICS.

AT a meeting on December 6th, Dr. J. BLUMFELD, President, in the chair, Dr. MAY DICKINSON BERRY gave an account of the administration of *Anaesthetics in America*, the greater part of which referred to observations made during a recent visit to the Mayo clinic at Rochester, Minnesota. That institution employed four hospital nurses specially trained in anaesthetics, and operations went on every morning in four theatres simultaneously. Open ether was used exclusively. The facepiece employed was a modified Esmarch covered with two layers of stockingette which after the first minute or two of induction was loosely surrounded by folds of gauze bandage. Ether was dropped on, slowly at first, then more rapidly, by means of a pledget of cotton-wool fitted into the cork of a pound or quarter-pound tin. The operation was begun in about five to eight minutes after the commencement of the anaesthetic. The patient was rarely so deeply anaesthetized as to show no reaction when the first cut was made, and throughout the operation, especially if this were abdominal, it was usual to see a lighter anaesthesia maintained than was generally demanded in Great Britain. Large abdominal retractors were used which probably rendered deep anaesthesia unnecessary. The anaesthetists, however, always had their patients well under control, and there was never vomiting or actual struggling, and the patient's condition was generally excellent. There had never been a death due to the anaesthetic at the hospital. After-sickness was usually slight, and ether bronchitis was stated to be unknown. Ether was given for all operations, including goitre (simple or exophthalmic), cleft palate,

tonsils, and adenoids, and even for small operative proceedings where nitrous oxide would have seemed sufficient. The amount of ether used was small; for operations lasting thirty to fifty minutes 4 oz. was the usual quantity; in one goitre operation lasting forty-three minutes only 2 oz. of ether was used. The speaker emphasized the very small use that was made of chloroform; in some hospitals it was almost prohibited. Another noteworthy point was the little use made of the eye reflexes. The eyes were almost everywhere left covered by protective tissue. Medical men who practised anaesthetics as a speciality were comparatively few, but were increasing in number, especially in the eastern cities. Many hospitals employed nurses who not infrequently had been trained at Rochester, preferring a specially-trained nurse to a comparatively untrained house-surgeon. In the discussion which followed, Mr. GEORGE E. GASK differed from Mrs. Berry with regard to the excellence of anaesthesia in America. The Mayo clinic was not typical of all American practice, for that surgical centre stood high above everything else in the States; from what he had seen in the other places that he had visited in America the anaesthesia was not up to the standard obtained in the hospitals of London. Surgeons interfered with the anaesthetist far more in America than in London. Open ether was given (and given well) at the Mayo clinic for everything; he did not know whether the freedom from ether bronchitis was due to the dry climate of America, but with regard to this point it must be remembered that the class of case dealt with at the Mayo clinic differed from the hospital cases in Great Britain; frequently patients had to travel hundreds of miles to get there, and so at the Mayo clinic they did not get the horrible fulminating cases that one got in London. Dr. J. F. W. SILK also laid stress on this difference in the type of patient treated.

HISTORY SECTION.

At the inaugural meeting of the History Section of the Royal Society of Medicine, held recently, Sir William Osler was elected President, and Dr. Raymond Crawfurd and Mr. D'Arcy Power Honorary Secretaries. A council was also appointed, and five Vice-Presidents—namely, Sir Clifford Allbutt, F.R.S., Dr. Richard Caton, Sir William Church, Sir Henry Morris, and Sir Ronald Ross. Subsequently the PRESIDENT gave some account of Sir William Petty, a seventeenth century professor of anatomy, and his work in connexion with the distribution of land after the Cromwellian conquest of Ireland. Petty was at the time physician-general to the forces in Ireland. The distribution entailed a thorough survey of the greater part of Ireland, a task which, according to the Surveyor-General, could not be completed in less than thirteen years. Petty offered to undertake and to complete it in thirteen months. This survey, which came to be known as the Down survey, was commenced in 1655, and still constitutes the legal record of the title on which half the land of Ireland is held. The text of Sir William Osler's remarks was a manuscript which he found bound at the back of two volumes of Petty's letters bought by him at the sale of the Phillips MSS. in 1911. Dr. CRAWFURD sought to show that the whole history of typhus fever bore out the modern belief that body lice are the infecting agents. Mr. D'ARCY POWER exhibited some contemporary portraits of early medical workers. Dr. MICHAEL FOSTER exhibited two eighteenth century Italian diplomas.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on November 14th Dr. EURICH, in a presidential address, said that two influences had been, and still were, inimical to medicine, namely, arm-chair speculation and dogma. The former was disappearing, but the latter remained, chiefly perhaps among the laity. In primitive times belief in a Godhead was universal, and disease was believed to be a punishment for sin. Hence the healing art fell into the hands of the priesthood; and the dogma of the supernatural causation of disease prevented any serious advance in medical knowledge. Though certain mental diseases could be analysed correctly only by the correlation of clinical material, yet they still came under the sway of dogma. Insanity and criminal responsibility were still, for instance, decided upon by laymen. Only the medical mind could realize that the will could only find expression through the medium of the brain alone, and that manifestations of the personality could move within the limits of "the normal" only if the brain were "normal" also. An individual was what he was by virtue of the sum total of the sensory impressions that had reached his brain. Psycho-analysis showed that even the forgotten events of childhood could exert influences in later life. How were these difficult matters to be decided if not by medical men? Yet the legal profession was still inclined to hold to the dogma of the absolute responsibility of many persons whom physicians knew to be insane. In criminal trials two decisions had to be arrived at—first, the guilt of the prisoner, properly decided by the jury; and, secondly, the degree of his guilt, the proper function of the judge. This latter function should be shared by the alienist and the student of criminal anthropology. The whole punitive system was based upon principles fundamentally unsound. The educational possibilities in punishment were its only justification, and any system of punishment which was the expression of the vengeance of society was doomed to failure. A time would come when the only sentence of courts would be indeterminate segregation, during which time the prisoner would work out his own salvation, and his education, guidance, occupation, would be left in the hands of educationsts and of medical men of special training and experience.

ASSOCIATION OF REGISTERED MEDICAL WOMEN.

AT a meeting held on December 3rd, Dr. CONSTANCE LONG, President, in the chair, Dr. LOUISA HAMILTON showed a case of *Scleroderma*. The patient, a married woman, aged 35, had been attending the New Hospital for Women since April, complaining of a sensation of coldness below the waist. She had recovered from a similar attack two years previously. The skin and subcutaneous tissue of the buttocks, thighs, shoulders, neck, and arms were hard, and as though infiltrated with wax. She had improved greatly under treatment by thyroid extract. Dr. ELIZABETH LEPPER, speaking of the diagnosis of *Hydatid cysts*, said blood examination might prove useful in two ways: A differential leucocyte count showed eosinophilia to exist in some cases. This, however, while often absent in hydatid disease, was frequently present in cases of intestinal worms, and in carcinoma or gumma of the liver; as a precaution the faeces should always be examined. Secondly, a complement absorption test could be carried out on the same principle as the Wassermann test for syphilis. She had obtained positive results in 3 cases of hydatid disease, while 15 normal patients similarly tested gave negative results. Weinberg and others had obtained positive results in 75 to 100 per cent. of cases. Brauer, using an alcoholic extract of the cyst wall, obtained a positive result also in cases of syphilis and tapeworm. Miss Lepper's 3 cases had not given a positive Wassermann test, and 4 cases positive to the Wassermann test had been negative to the hydatid test. The blood serum might contain the antibodies a few weeks to several years after complete recovery from the disease; 1 case had proved positive to the test after six and a half years. Dr. GERTRUDE GAZDAR read notes of 2 cases of *Ulcerative colitis* associated with chronic interstitial nephritis. The patients were both males, one aged 9, the other 36. Dr. LOUISA ALDRICH BLAKE said that a surgical opinion was often asked in these cases. Ulceration was rarely found in the small intestine, the large intestine being affected in the majority of cases. Dr. ELIZABETH BOLTON described, among other cases, one of *Papilloma of the cystic duct* accompanied by gall stones. Dr. HELEN CHAMBERS, in an account of the *Action of radium*, said that clinically it diminished the discharge from malignant growths, relieved pain, and in some cases healed ulceration. Haaland had shown that radium exerted a direct influence on cancer cells, and that excised mouse cancer which had been exposed to radium did not give rise to growth when inoculated into healthy mice. The use of emanation in solution for injection into tuberculous and septic joints was suggested as likely to prove eminently useful.

Reviews.

THE ETIOLOGY OF PUERPERAL FEVER.

DR. GEDDES'S book[1] is an attempt to throw light upon the etiology of puerperal fever by means of statistical analysis. All the available data of cases of puerperal fever notified in different districts of Lancashire, the industrial characters of the districts, and their vital statistics, are set out in detail. Numerous diagrams are provided showing the incidence of puerperal fever and of other diseases upon the districts reviewed, the possible relations between different diseases, together with the fallacies which may underlie statistical returns, being considered. Dr. Geddes shows that the incidence of *notified* puerperal fever is almost uniformly heavier upon mining and industrial than upon residential and agricultural districts. He connects this with the greater frequency of accidents in mining and manufacturing communities, and argues that the transference of streptococci from infected wounds to parturient women is a principal factor in the etiology of puerperal fever. In the author's opinion medical practitioners are more likely to play an important part in such transference than are midwives, and he emphasizes the necessity of a strict observance of surgical cleanliness on the part of general practitioners.

Dr. Geddes has written an interesting book, and one which must have entailed an heroic amount of labour; it would however, in our opinion, be too much to say that his thesis is proved. The great difficulty in all such investigations is to avoid confusing causation with correlation. We cannot feel sure, for instance, that the difference between the puerperal fever-rate in mining and residential districts is an effect, direct or remote, of the difference in the frequency of accidents. There are other differences between the districts which Dr. Geddes has not been able to take into account. To mention only one, the age constitution of the married population may vary considerably, and it is not impossible that the age of a parturient is a factor of some importance in relation to the etiology of puerperal fever. We also doubt whether so complex a research does not require more precise methods of investigation than have been employed. For instance, the method of partial correlation would seem to find an application here. Dr. Geddes sometimes seems to draw conclusions with more confidence than is prudent. Thus, he finds that whereas the average number of cases of puerperal fever notified in the month of March for over a period of ten years was 4, but 2 such cases were notified in that month of the present year. This is a result Dr. Geddes is disposed to attribute to the diminution of accidents consequent upon the coal strike. The attribution may be correct, but if in a series of ten months 40 cases of disease occur, and if the distribution in months of the series be a random one, the chance is about one in five that we shall find 2 or less cases in a month. In other words, the improbability of such a result is not great.

These criticisms must not, however, be interpreted as a disparagement of Dr. Geddes's book, which is a useful contribution to the literature of an important subject. In particular we hope that the difficulties in comparing official statistics compiled by different departments, to which he draws attention, will be remembered by those responsible for the present system.

THE ADMINISTRATION OF ANAESTHETICS.

THE fourth edition of *Anaesthetics and Their Administration*,[2] by Sir FREDERIC HEWITT, will be welcomed by many who have profited by the excellent teaching of the earlier editions. So many changes have recently taken place in the art of administering anaesthetics that the author has undertaken no light task in bringing the volume thoroughly up to date; he has been assisted in the preparation of the present edition by Dr. Robinson. A marked feature of this edition is the wealth of illustrative cases; they are recorded with great care and accuracy, and form not only a practical basis for any theories which the author propounds, but also render possible a really practical system of clinical instruction, of not too elementary a type. This is a good feature not always found in works upon this subject. A whole chapter has been devoted to the subject of the injection of various alkaloids as a preliminary to narcosis. Not only are all the advantages claimed for the method described, but what is perhaps even more important—the contraindications to the various hypnotic and other drugs are clearly emphasized. The chapter on the administration of ether has been much amplified in order to include the more recent developments. A clear account of the open ether method is given and also of the method of intravenous infusion. Speaking of spinal analgesia Sir Frederic Hewitt describes the method of regulating the height of analgesia by means of the specific gravity of the injected fluid, but remarks when discussing the posture of the patient, "If not in a fit state to sit up the injection may be given in the lateral posture." This statement seems to be open to criticism. If a heavy solution of stovaine is used it is difficult to see the advantage of the sitting posture even for a few seconds, except, of course, when an analgesia of the sacral plexus only is required. The use of spinal analgesia in infancy is condemned, but we believe that excellent results have been obtained in young children suffering from such acute infective conditions as appendicitis and osteo-myelitis, cases in which post-operative acidosis is liable to occur. This edition has emphasized the merits of its predecessors, and the reader may turn to the discussion of any of the scientific questions underlying the art, with the sure feeling that he will find a fair presentment of the evidence upon which conclusions must be based. In again recommending this book to all who are interested in the science as well as in the art of administering anaesthetics, we may say that the present edition fully maintains the great reputation of the work.

The second edition of *Practical Anaesthetics*,[3] by Mr. EDMUND BOYLE, is a small volume which deals with the subject in a practical manner. At the outset the author points out that the anaesthetist has duties other than the actual administration during the operation—an examination of the patient beforehand, the selection of the anaesthetic, and the care of the patient during his return to consciousness are important parts of the anaesthetist's business. In regard to the after-treatment of a patient the author says, "The head should not be raised." This statement might with advantage have been qualified. Patients suffering from suppurative abdominal conditions depend much upon a semi-recumbent posture for their subsequent well-being, and surely a patient anaesthetized by ether is not jeopardized by having his head raised. Only a short description of the open ether method is given, whereas the various closed methods are dealt with at length. Dwelling on the great safety of ether, the author points out the wisdom of using it as a routine anaesthetic, and chloroform only in those exceptional cases in which it is especially indicated. The chapter on spinal analgesia is a contrast to the practical nature of the rest of the book. Lengthy details of dosage are given, but no attempt is made to illustrate the principles that underlie the practice of spinal analgesia. The author remarks that the dorsi-lumbar puncture between the twelfth dorsal and first lumbar spines is used for operations upon the abdomen and lower half of the body, and that the lumbar puncture between the third and fourth lumbar spines is used for operations upon the lower limbs and perineum. In other words, that the height of the analgesia is regulated by the height of the injection. But the usual method of regulation by the use of a heavy solution of stovaine, which is made to flow to the required height by gravity, is not mentioned. With the exception of this chapter the book is well and clearly written, contains much information in a concise form, and should be very useful to those for whom it is intended.

[1] *Statistics of Puerperal Fever and Allied Infectious Diseases.* By George Geddes, M.D., C.M. Bristol: John Wright and Sons; London: Simpkin, Marshall, Hamilton, Kent and Co. 1912. (Demy 8vo, pp. 121. 6s. net.)

[2] *Anaesthetics and Their Administration: A Textbook for Medical and Dental Practitioners and Students.* By Sir F. W. Hewitt, M.V.O., M.A., M.D.Cantab. Fourth edition, prepared with the assistance of Henry Robinson, M.A., M.D., B.C.Cantab. London: Macmillan and Co., Limited. 1912. (Med. 8vo, pp. 691; 71 figures. 15s. net.)

[3] *Practical Anaesthetics.* By H. E. Boyle, M.R.C.S., L.R.C.P. Second edition. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1911. (Cr. 8vo, 219 pp.; figs. 16, plates II. 5s. net.)

Dr. MORTIMER, in the preface of his book, *Anaesthesia and Analgesia*,[4] tells us that he has endeavoured to treat the subject in a manner which will be useful to the practitioner. Consequently historical references and detailed descriptions of complicated apparatus have been omitted, while full attention has been devoted to the practical side of the subject. The book is comprehensive, and deals with all forms and combinations of anaesthetics and analgesics, but does not seem to be of quite equal merit in all its parts. The chapters dealing with the various complications of anaesthesia and the different methods of infusing saline fluid are clearly written, and give valuable information, but, on the other hand, the open method of administration of ether is very briefly dealt with. Again, speaking of spinal analgesia, the author remarks that "a solution heavier than the cerebro-spinal fluid is used in order to regulate the action of the drug"; but he does not mention how by varying the position of the patient during the injection this regulation is brought about. He further states that the sitting posture is generally preferable for the injection, and that the patients should be kept sitting up for five minutes afterwards. This is very true if an analgesia of the sacral plexus only is required, but surely is contrary to practice for such cases as appendectomy, etc., when analgesia corresponding to about the fifth dorsal segment is required. Dr. Mortimer enters fully into the question of the preliminary injection of alkaloids and the advantages to be gained thereby. He also sounds a note of warning which will be appreciated by all who have had considerable experience in the use of these drugs. He points out that the prolongation of narcosis necessitates constant watching after the patient has been returned to bed, in order that a free airway may be maintained, otherwise considerable risk of asphyxia will be incurred. The book on the whole is clearly written. The instructions for the administration of the various combinations of general anaesthetics are both detailed and lucid, and should be of use to students as well as practitioners.

As a manual for students Dr. BLUMFELD's handbook of *Anaesthetics*[5] leaves little to be desired. It has now reached a third edition, and is packed with useful information and practical hints. A system of cross-references tends to conciseness and lucidity, and a full index adds to its value. The distinction between too deep and too light chloroform narcosis, the *bête noire* of beginners, is well set forth. The first direction for ethyl chloride-ether induction might be amplified; it is a trifle obscure and is not assisted by the figure referred to. Some, too, might consider the method advised for induction by CE unduly slow and cautious. No mention is made of the value of oxygen in the chapter on the dangers of anaesthesia. In every fresh edition of a textbook for students the question of the substitution of more recent methods for old arises. If the author errs it is on the side of conservatism. In the present volume a brief but sufficient description is given of intravenous and intrathecal methods. One may perhaps hope that in the next edition Dr. Blumfeld will consider the time ripe to recommend the use of alkaloids and open ether as a routine procedure, to restrict the use of chloroform to the Vernon-Harcourt or Junker inhaler, and to advocate the more general use of ethyl chloride in the induction stage of anaesthesia.

The small textbook of *Dental Anaesthetics*[6] by Dr. WILFRED ALDERSON gives a very lucid account of a special branch of anaesthesia which, although most important, is frequently very briefly dealt with in works upon the general subject. The author describes very thoroughly most of the methods of administration of nitrous oxide gas, but fuller details of the nasal method might with advantage have been given. While agreeing with the author in his condemnation of chloroform as a dental anaesthetic, we cannot altogether accept the view that ether by the open method is more generally useful than the continuous nasal gas. The book contains much practical information in a concise form which should prove very useful to those for whom it is intended.

[4] *Anaesthesia and Analgesia.* By J. D. Mortimer, M.D.Lond., F.R.C.S.Eng. London Practitioners' Manuals. London: Hodder and Stoughton, and Henry Frowde. 1911. (Dbl. fcap. 16mo, pp. 286; figs. 29. 6s. net.)

[5] *Anaesthetics: A Practical Handbook.* By J. Blumfeld, M.D. Third edition. London: Baillière, Tindall, and Cox. 1912. (Cr. 8vo, pp. 142, illus. 22. 3s. 6d. net.)

[6] *Dental Anaesthetics: A Textbook for Students and Practitioners.* By W. E. Alderson, M.D.Durham, M.S., B.Hy., D.P.H. With a Contribution on Analgesia by John Bolam, L.D.S.Edin. Bristol: John Wright and Sons, Limited. 1912. (Fcap. 8vo, pp. 108. 3s. net.)

THE AMERICAN PRACTICE OF SURGERY.

VOLUME VIII of the *American Practice of Surgery*[7] is sent out into the world by the editors, Dr. BRYANT and Dr. BUCK, with, we fancy, more than a sigh of relief. It is a huge undertaking to present a complete system of the science and art of surgery as it is practised by representative surgeons of the United States and Canada. The editors in a valedictory note express their indebtedness to those who are the real constructors of the edifice—the authors of the one hundred and two articles of which the eight volumes are composed. But, as they indicate, they have exercised their editorial functions in a moderately rigorous way, as they found themselves compelled to cut and to prune so as to keep the work within reasonable bounds and evenly balanced. Their duties, then, have been anxious and arduous, and we feel assured that the American medical world will give the result of their labours the hearty welcome which it deserves.

This bulky volume of over a thousand pages continues the description of the surgery of regions. It deals with intrathoracic surgery, the spleen, kidneys and ureters, liver, gall bladder and bile passages, and the genital organs of both sexes. There is a well-informed chapter on the law in its relations to the surgeon and the practice of surgery. This may not appeal to British readers, as, properly enough, only American cases are cited, but if the law is simply concentrated common sense British surgeons will find this chapter as interesting as any. Medical witnesses in any part of the world may well take to heart the advice here given to the surgeon as witness. He is advised to be well impressed with the importance of his office, to be thoroughly prepared in his case and all the medical and surgical points connected with it; to give his evidence coolly, firmly, and candidly; to avoid discussion with counsel, to preserve an unbiassed mind, and to exercise prudence in dealing with subjective symptoms. The article is written by Dr. Stephen Smith and Mr. Sydney Smith, LL.B., of the New York Bar.

The surgical diseases of the kidneys and ureters are dealt with in a most able article from the pen of Dr. James Bell, Montreal. Tuberculosis of the kidney forms one of its most important sections, and we find the discussion of this subject is eminently fair and frank. Diagnosis of tuberculous infection of one kidney is difficult, and the behaviour of the disease in the female is not the same as in the male. Opinion is general that in the female tuberculous infection of the genito-urinary tract commonly begins in the kidney, and in the male in the testicle. In the former thickening of the ureter, puckering, and bullae-like deposits around the ureteral orifice help materially to fix the site of disease. The final diagnosis of kidney tubercle must always rest on the demonstration of the bacilli in the urine by microscope or by inoculation experiments. In describing nephrectomy the abdominal route might have received more commendation than the author seems willing to accord.

In the article dealing with enlargement of thymus and its treatment, by Dr. Ransohoff of Cincinnati, the tendency for the enlarged thymus to become herniated after its capsule is opened is duly noted, though curiously the work of Olivier in this branch of surgery is not mentioned.

Diseases of the prostate are the subject of a good article by Dr. H. H. Ferguson of Chicago. Of all the operative measures proposed for dealing with enlargement of this organ, the author prefers the suprapubic operation of Freyer, and this surgeon is paid the compliment of having his operation described *in extenso* in his own words.

In the last part of the book administrative surgical work is dealt with in a fairly satisfactory manner, including many questions affecting hospital construction, though the author, Dr. Christian R. Holmes of Cincinnati, regrets

[7] *American Practice of Surgery.* A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Edited by Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D., of New York. Complete in eight volumes. Vol. VIII. New York: William Wood and Company. 1911. (Dble. demy 8vo, pp. 1158; figs. 406.)

that limits of space prevent adequate treatment of the subject. There are two features in the paper which we think worthy of special regard—the solarium or roof garden of many American hospitals, and the system of artificial lighting advocated. The solarium is now a recognized adjunct of the ward; where space is available the open areas around the pavilions serve the purpose, and in large cities the roof is the place. As the author points out, all kinds of infective diseases are benefited by open air methods, so in New York City we find open air roof wards in the lying-in hospital for use in cases of eclampsia, toxaemias of different kinds, abnormal pregnancies, and in the Presbyterian Hospital for tuberculous patients, and for cases calling for surgical operations. Even the severity of the New York winter does not preclude the use of the roof ward, for its glass walls and roof can be partially or completely closed if necessary. The photographs illustrating the text show how satisfactory though inexpensive these roof wards may be.

For artificial lighting the author prefers the Moore system, in which the light is supplied by glass tubes containing rarefied atmospheric air through which an electric current is passed. Its inventor claims that it is cheaper than any other system, that its light is the nearest approach to diffuse daylight known, that it can be regulated easily, and that it has been sufficiently tested to be regarded as reliable.

Of this ambitious work as a whole it may be said that it is well worthy of the attention of British surgeons, who will find from it that while American surgery is not essentially different from surgery in any other part of the world, American surgeons can write vigorously and pleasantly, and with full grasp of the subject.

THE DICTIONARY OF NATIONAL BIOGRAPHY.

THE second supplement to the *Dictionary of National Biography*,[8] containing biographies of noteworthy persons dying between January 22nd, 1901 (death of Queen Victoria), and the end of 1911, has been completed by the issue last week of the third volume. It contains the names of twenty-eight women, chief amongst whom is Florence Nightingale (of whose beneficent life Mr. Stephen Paget gives a just, full, and well-balanced account), and of 115 persons engaged in scientific pursuits, including engineering, medicine and surgery, exploration, and economics. Of the 557 memoirs, 115 fall into this category. Chief amongst them are the memoirs of Sir George Stokes, by Sir J. Larmor; of William Thomson (Lord Kelvin), by Professor Silvanus Thompson; and of Herbert Spencer by Mr. Hugh S. R. Elliot. Among the ecclesiastics are Archbishop Temple, Cardinal Vaughan, and Bishop Stubbs, the historian, who especially disliked "dinner parties, smoking, late hours, and—committees." Of the politicians the chief are the fifth Earl Spencer and the first Earl of Kimberley; of the artists Watts and Whistler; of the men of letters Leslie Stephen and Goldwin Smith.

Sir Ernest Clarke's biography of Sir John Simon is sympathetic and well informed; but while bringing out well his share in the early stages of public health reform and his influence on others, his lieutenants and coadjutors, it perhaps does less than justice to him as a medical reformer. Simon saw more clearly than any of his contemporaries, and than many who succeeded him, that successful public health administration was impossible without an efficient organized medical profession, and that if that were not assured, sanitary administration would rest on empiricism, and be governed by red tape. He suffered temporary defeat himself, and his biographer here records that "the cause of sanitary progress was prejudiced by his retirement" in the full vigour of his faculties in 1876. But the principle for which he fought has gathered strength, and is present to the mind of most politicians even when their methods of applying it seem ill-conceived and ineffectual. Dr. H. P. Cholmeley contributes the article on Dr. Vivian Poore, which, while eminently just, will gratify his many surviving friends, and on the two Thomas Wakleys, the son and grandson of the founder of the *Lancet*. Dr. H. D. Rolleston has a number of articles, and among them special reference may be made to those on Sir Henry Pitman, the centenarian Emeritus Registrar of the Royal College of Physicians of London, and Sydney Ringer. Of the biographies contributed by Dr. Norman Moore, that on Frank Payne is the more successful; that on Sir Samuel Wilks seems, somehow, to fail to convey an adequate impression of his great influence through two generations of medical London. Dr. Brockbank gives an adequate account of Symes Thompson, and Dr. Rowlette is responsible for a sympathetic article on Conolly Norman as well as for the biography of Sir Philip Smyly. Mr. D'Arcy Power has written good brief biographies of Sir Thomas Smith, Sir Henry Thompson, Sir P. Heron Watson, C. G. Wheelhouse, and J. Smith Turner, the father of the Dentists Act, but he gives an incorrect impression of Sir Willoughby Wade's influence in the development of the British Medical Association, considerable as it was.

Few works have in recent years been more keenly criticized than the *Dictionary of National Biography*. Errors have been discovered, as was, indeed, to be expected in a work of such magnitude and so full of detail, but it has stood the trial well, and with its two supplements is an indispensable part of any British library which aims at completeness.

[8] *The Dictionary of National Biography*. Second Supplement. Vol. III (Neil-Young). Edited by Sir Sidney Lee. London: Smith Elder and Co. 1912. (Roy. 8vo. Pp. 738. Price, cloth 15s. (half morocco 20s.) net each volume.)

NOTES ON BOOKS.

THE fourth edition of *The Nutrition of the Infant*,[9] by Dr. RALPH VINCENT, is stated to contain a great deal of new matter, especially in relation to the bacteriology of milk, and to have been carefully revised throughout. It contains much information, but nevertheless must be regarded rather as a contribution to the study of the subject indicated than as a comprehensive treatise thereon. It is written from the standpoint of the upholder of one special method of rearing infants by artificial means, namely, the method of Rotch. Whatever may be said of its principles they are, as this volume itself admits, practically insusceptible of application except by those who are in touch with laboratories specially fitted for the work entailed, and able to avail themselves of the facilities thus offered. Even at the institution which Dr. Ralph Vincent has brought into existence, it has been found necessary to adopt the fat-whey method extensively in the out-patient department, and since the results are stated to have been extremely satisfactory one may almost expect this or some other equally simple method to creep into the wards, despite the predilections of the author for the Rotch method. In addition to other matter the book contains a chapter on proprietary preparations, but its contents suggest that less attention has been paid to this section than to the rest of the volume, and in this and other connexions there are points on which a reader may fail to obtain the information required by him.

The third edition of *A Guide to Promotion*,[10] by Captain S. T. BEGGS, has been made to conform with certain new regulations, and brought up to date in all respects, but otherwise is on all-fours with its predecessors. It is a purely technical work, in the sense that those for whose benefit it is produced are junior non-commissioned officers in the Royal Army Medical Corps, but conveys such a very clear conception of the way they have in the army in matters medical and surgical as to be of some general interest. It should also be useful to commissioned officers responsible for the training of the men in question.

The manner in which Mr. E. BROWN answers the question, *Can a Drunkard be Cured?* lacks the judicial comprehensiveness which should be the aim of any one who tackles the subject of alcoholism, and has spoilt what might have been a useful, if not very weighty, contribution to the subject.[11] He says inebriety is a disease, and regards the dipsomaniac as less curable than the chronic inebriate. If this opinion has been formed after the treatment of many chronic inebriates it is remarkable. Mr. Brown condemns inebriate homes, but gives no figures to show that the treatment he advises gives better results.

[9] *The Nutrition of the Infant*. By Ralph Vincent, M.D. Fourth edition. London: Baillière, Tindall, and Cox. 1912. (Demy 8vo, pp. 365; plates 17, figs. 23. Price 10s. 6d. net.)

[10] *A Guide to Promotion*. By Captain S. T. Beggs, M.D., Royal Army Medical Corps, Reserve of Officers. Third edition. London: Gale and Polden, Limited. 1912. (Cr. 8vo, pp 448. 3s. 6d. net.)

[11] *Can a Drunkard be Cured?* By E. Brown, M.R.C.S Eng., L.R.C.P.Lond. London: Francis Griffiths. 1912. (Crown 8vo, pp. 86. 2s. 6d. net.)

He says that music is an incentive to inebriety, but recommends pastry, sweets, and fruit. "I defy any one," he says, "to feel a longing for a drink after he has been eating, say, a cheesecake." Mr. Brown's sheet-anchor is treatment by suggestion. Inebriates are cured by many agencies, suggestion among them, but to assert that in a series of cases suggestion is superior to other methods is to presuppose a conclusion a wider experience will confute.

The third edition of *A Handbook for Midwives and Maternity Nurses*,[12] by Dr. COMYNS BERKELEY, is considerably larger than its predecessor, and covers the ground indicated by its title very completely. The sections dealing with anatomy; with the physiology and pathology of pregnancy; with labour, the puerperium, and the care of the infant are all equally clearly written, and suitable illustrations are supplied. There are also sections on some allied subjects, and five very useful appendices, one of which deals with the early recognition of cancer, a second with venereal disease, and a third with nursing before and after the performance of a Caesarean section. Acknowledgements are made in the preface for assistance received from Miss A. Bloomfield, Miss E. Watkins, and Miss E. Greaves, who are the matrons respectively of Queen Charlotte's Hospital, the General Lying-in Hospital, and the City Lying-in Hospital. But, apart from this, the volume itself supplies evidence of its author's readiness to receive well-founded suggestions. It should prove of much value to midwifery pupils and their teachers.

"TRUTH CHRISTMAS ANNUAL."

The approach of Christmas is invariably heralded by the appearance of a host of Christmas numbers, and one of the most popular has always been the *Truth Christmas Annual*,[13] whose mordant allusions to current events have delighted its readers for many years past. The present number of "The New Ingoldsby" contains several clever parodies of Richard Harris Barham's delightful verses, all of which have reference to the persons, places, and events which at the present moment are most prominently before the eyes of the public. A special feature of this year's annual is "Everylady," an amusing skit on the morality play, *Everywoman*, and a curious story called "The Middle Watch," whose plot centres round the unusual circumstances attending the birth of the longed-for heir to a European throne. The latter is in itself almost enough to ensure the success of any periodical in which it appears; but the present instalment of "The New Ingoldsby" is well up to its general average, and therefore needs no further recommendation. It is, as usual, profusely illustrated, and contains two large coloured plates.

DIARIES AND CALENDARS.

Messrs. JOHN WALKER AND CO.'S diaries are so well known as to be beyond praise; they only need mention. Those issued this year present the usual variety of arrangement, size, and appearance, fitting them for the particular purposes of different classes of people. Those described as "a week at an opening" are made in five different sizes; the bindings range from workaday cloth to solid Russia. They can be had either in fast or renewable bindings. All are provided with a back loop and pencil and have the usual pockets for stamps and so forth. Then there are diaries of corresponding styles, in which there is a page for every day, and others with a page for every two days. All these diaries can be obtained in sizes suitable for the pocket. All are well printed on good paper, and each includes an accident insurance coupon. An especially useful form is that called the "loose-leaf" diary, which can be arranged to suit the convenience of the owner. They have the advantage that towards the end of the year all used pages can be replaced by others for the coming year. The calendars issued by the same firm are excellently adapted for the purpose they are intended to serve. We know of no diaries or calendars more suitable for persons of all sorts and conditions—business and professional men, and those who have to keep a note of their social engagements, or keep memoranda of any kind. The claim made by Messrs. Walker and Co. (that their publications represent the perfection of British manufacture in this line) seems to be fully justified.

[12] *A Handbook for Midwives and Maternity Nurses.* By Comyns Berkeley, M.A., M.D., B.C.Cantab. Third enlarged edition. London: Cassell and Co. 1912. (Pott 8vo; figs. 58; pp. 40. Price 5s. net.)

[13] *Truth Christmas Annual.* 1912. "The New Ingoldsby." Price 1s.; pp. 48.

MEDICINAL AND DIETETIC PREPARATIONS.

Nutresco Preparations.

THE South African firm, whose malt and cod-liver oil preparation (Maltesco) we recently described, has several other products, one being Bovesco, another Carnesco, and and a third Pulvesco. The two former are meat extracts intended for ordinary and sick-room purposes respectively. Their conspicuous feature is the presence, in addition to other protein contents, of an exceptionally high proportion of albumoses and peptones. They thus provide a means of preparing rapidly a beef-tea which is nutritive as well as stimulating. The main difference between Bovesco and Carnesco would seem to be that the former contains a small proportion of celery, salt, and pepper, while the latter is left to be flavoured according to the individual tastes of invalids, and is somewhat more concentrated. The third product, Pulvesco, is, as its name suggests, a dry meat powder, mainly used for the preparation of other subproducts of the company, such as "Forced March" emergency biscuits and meat-pea-flour intended for the preparation of nutritive soups. Its percentage constituents are approximately as follows: Carbohydrates and fats, 45.6 per cent.; insoluble protein, 42.7 per cent.; soluble protein, 5.8 per cent. It is rich, therefore, in flesh-forming constituents. The firm, whose formal title is the Nutresco Company, Maritzburg, Natal, also makes meat tablets, Nutresco chocolate (Carnesco and chocolate), and discs or cubes known as Nutresco nuggets (gelatine and Bovesco), to be swallowed as they are or used for the preparation of soup on journeys.

MEDICAL AND SURGICAL APPLIANCES.

Uterine Dilator.

DR. C. C. STEAD (Hawkhurst) writes: The accompanying figure illustrates a new form of uterine dilators, which, I believe, are a distinct improvement on any other dilators on the market. They consist of three double-ended instruments and one other, which I have called a "pressor." The latter consists of a piece of metal roughly the shape of the proximal half of a door handle. The flat surface is bored with holes, into which the ends of the dilators fit; the more rounded surface fits comfortably into the palm of the operator's hand. By this means the operator is enabled to give exactly as much or as little pressure as is necessary without such great strain on his hands as is inevitable in using small sizes of double-ended instruments without some such device as the pressor. The dilators themselves consist of two conical ends (each 2½ in. long), joined together by a shaft (2½ in. long), giving a total length of 7½ in., which has been found by experience to be most convenient, the larger sizes being hollow, so that the air inside the uterus can escape. Special care has been given to the graduation of the dilators. In practice the greatest difficulty in using Hegar's and other dilators is in introducing the next size larger after the first, through the internal os, the distance of which from the external os averages 1 in. In this set of instruments the small end of each of the sizes (after the first) has the diameter, not of the previous size at its largest end, but of the previous size at a distance of 1 in. from that end. For example, take the two middle sizes: No. III begins with the diameter of 7 mm., increasing by 1 mm. every half-inch, so that at 1 in. from its thickest end it is 10 mm. in diameter. Size IV is 10 mm. at its thin end, and can therefore be immediately inserted into the os internum, provided that Size III has been completely introduced. There being only four instruments in this set—namely, three dilators and one pressor—weight, space in the bag, and cost have been reduced to a minimum. I can confidently recommend the set to the profession, as it has proved handy and reliable both in my own hands and in those of the one or two friends to whom I have lent the sample set. They have been produced by Messrs. Weiss and Son, of Oxford Street, to whom I owe many thanks for the assistance they have given me, and the care they have taken in following out instructions.

THE late Dr. Frank Montague Pope left estate valued at £2,635.

LONDON WATER.

THE sixth annual report of Dr. A. C. Houston, Director of Water Examination, Metropolitan Water Board, on the results of the chemical and bacteriological examination of the London waters for the twelve months ended March 31st, 1912, has recently been issued. The results are carefully tabulated and the document is full of interesting details. In his introduction Dr. Houston states that the most notable events of the year under review were the passing of the Metropolitan Water Board (New Works) Act and the Thames Conservancy Act, 1911, and the prolonged summer drought and high temperature of that year. The Metropolitan Water Board in its New Works Bill (1911) asked for eight storage reservoirs and a new intake. In the face of strenuous opposition the Water Board deemed it prudent to withdraw their proposals regarding the intake and three of the reservoirs. Further, the Board indicated its readiness to abandon the "unrestricted right" to abstract 130 million gallons daily from the River Thames, in the hope that certain suggested alterations in the rules governing abstraction would meet with the approval of Parliament.

Parliament rejected two of the proposed reservoirs and cancelled the "unrestricted right," but granted only in part the concessions sought for in return. The fate of the bill was anxiously watched by those particularly concerned with the quality of the metropolitan water supply during its hearing by the Joint Committee of the Houses of Lords and Commons. Experience alone, says Dr. Houston, can fully show how far the form in which the bill emerged as an Act of Parliament is likely to affect the future purity of the supply. The greater part of the report is of a technical character, and only a short summary can be given here.

BACTERIOLOGICAL RESULTS.

The results of the bacteriological examination are stated as follows:

Raw Water.—The averages of microbes per cubic centimetre for the twelve months were as follows: Raw Thames water, 9,155; highest, 18,219 (December); lowest, 2,516 (May). Raw Lee water, 15,071; highest, 42,586 (January); lowest, 3,647 (September). Raw New River water, 3,154: highest, 9,325 (December); lowest, 1,108 (May).

It is pointed out that these results have an important bearing on the abstraction figures. In a gravitation scheme, with a superabundant source of supply and huge storage reservoirs, the amount abstracted for storage purposes should be inversely proportional to the current impurity of the water. In the circumstances pertaining to the London supply this is only possible in a partial sense, but attention is again drawn to the fact that the amount of river water abstracted during the months when the river contains an excessive number of bacteria is so large as to emphasize the desirability of passing it through storage reservoirs antecedent to its filtration.

Filtered Waters (including Kent and Lee Valley Unfiltered Water).—The following statement indicates that the exclusive (that is to say, exclusive of samples containing 100 or more microbes per c.cm.) figures for the filtered waters were small, and the percentage reduction effected by the processes of subsidence and filtration remarkably good:

	Thames.	Lee.	New River.
Raw water (microbes per c.cm.)...	9,155	15,071	3,154
Filtered water (microbes per c.cm.)	17.2	28.4	15.4
Percentage reduction	99.8	99.8	99.5

It is pointed out, however, that too much stress must not be laid on percentage reduction of microbes. The worse initially the raw water, the easier it is to obtain a final filtrate yielding satisfactory results on the basis of percentage purification.

The order of merit, based on the exclusive figures, is as follows; the average number of microbes per c.cm. being respectively:

Kent, 9.3; Chelsea, 10.9; New River, 15.4; Grand Junction, 15.9; Kempton Park, 16.2; East London (Thames), six months only, 18.1; Lambeth, 18.3; West Middlesex, 18.7; Southwark and Vauxhall, 20.2; East London (Lee), 28.4.

Tests for Special Organisms.

The following are the results of tests for special organisms:

B. Enteritidis sporogenes Test.

Raw Waters.—34.6, 40.3, and 17.3 per cent. of the samples of Thames, Lee, and New River water respectively yielded positive results with 10 c.cm. of water.

Typical B. coli Test.

Raw Water.—The results, judged by this test, were unsatisfactory, having regard to the fact that the rivers Thames and Lee are known to be seriously polluted with sewage, and that there is every reason to suppose that the majority of the *B. coli* found in the raw waters are of human excremental origin. The New River contained *B. coli* in 1 c.cm. (or less) in 51.4 per cent., the river Thames in 88.3 per cent., and the river Lee in 87.1 per cent. of the samples. Taking a one figure average result, the average number of *B. coli* per cubic centimetre, according to this calculation, was as follows:

Typical B. coli per Cubic Centimetre of Raw Water.

	Arbitrary One-figure Result.
River Thames	19
River Lee	5
New River...	2

The "best month" results were remarkably good, and the average results were also satisfactory.

For the filtered waters a one-figure result per cubic centimetre of water—expressed as typical *B. coli* per 1,000 c.cm. of water—is as follows:

Kent, 1 to 2; New River, East London (Lee), Kempton Park, Chelsea, Grand Junction, 2 to 3; Lambeth, Southwark, and Vauxhall, 3 to 4; West Middlesex, 14; East London (Thames), six months only, 17; Lee derived water, New River derived water, Thames derived water, All London waters, 2 to 3.

It is noted that, whereas out of every 100 *B. coli* isolated from the *raw* Thames, Lee, and New River waters, 84.0, 85.5, and 85.6 respectively proved to be *typical B. coli*, the corresponding figures for the filtered waters derived from these sources were 53.8, 55.7, and 54.6 respectively. The collective results were 85.0 in the case of the *raw* waters, and 52.9 in the case of the *filtered*—including a proportionately small number of unfiltered water samples. This is a *proportional* statement, and does not refer to the actual number of *B. coli* in the two cases. On the average, for the year under review, the River Thames is more impure than the Lee or New River, particularly than the latter. As regards the filtered waters, it is noteworthy that on the average, and in the best and worst months of the year, the Thames-derived waters compare unfavourably with the Lee and New River-derived waters.

Comparison between the 1910–11 and 1911–12 Results.

Comparing the condition of London water in 1910–11 and 1911–12, Dr. Houston says that chemically the *raw* New River water yielded worse results in 1911–12. The *raw* Thames and Lee yielded better results except as regards turbidity, and, in the case of the Lee, oxidizable matter, as judged by the permanganate test. The New River-derived filtered water yielded worse results in 1911–12, while the Thames-derived and Lee-derived filtered waters either showed no change or an improvement. The oxidizable matter (permanganate test), however, increased in the Lee-derived filtered water during the period under review.

Bacteriologically, the *raw* waters contained more bacteria in 1911–12 as compared with 1910–11. The bacteria growing in agar and bile-salt agar at 37° C. were also increased during the period under review. The *B. coli* results were not widely different from those of the previous year. As regards the *filtered* waters, the results were slightly better in 1910–11 as compared with 1911–12.

Conclusions.

In conclusion, Dr. Houston says that about 80 per cent. of the London water supply is derived from sewage-polluted rivers. As judged by the usual chemical and bacteriological standards, the *raw* waters above the "intakes" for waterworks purposes are undoubtedly unsatisfactory in quality, particularly during the winter

months. Within recent years a marked improvement has taken place in the methods of purifying sewage so as to render the resulting effluents non-putrescible and *chemically* unobjectionable. Apart from sterilization, however, no known practical process has yet been found which turns out a "safe" effluent, *bacteriologically*, and the great majority, even of chemically satisfactory effluents, are swarming with extremental bacteria. It is possible that improved methods of purification will, in a chemical sense, keep pace with increasing pollutions of the Rivers Thames and Lee, but the outlook bacteriologically is less hopeful. Prospective legislation as regards sewage purification would seem likely to run on the common-sense lines of protecting the general interests of the community at large, leaving to individual authorities who venture to utilize polluted rivers for waterworks purposes the full responsibility of employing such superadded processes of purification as the particular necessities of their own case demand. Belief in the future "safety" of London as regards water supply ought not, it is pointed out, to depend on the chimerical hope that the Thames and Lee are destined to become progressively less impure, but on increased knowledge as to the best means of purifying the water before it is sent into consumption.

Although the *raw* Thames and Lee contain *B. coli* in undesirable numbers, faecal streptococci are seldom discoverable in 1 c.cm. amounts of the water. Further, the results of a most elaborate search for the typhoid bacillus and Gaertner's bacillus have yielded practically negative results under conditions of experiment which have been shown to be successful in the case of *artificially infected* samples. Dr. Houston does not, however, contend that these pathogenic microbes are in reality uniformly absent, but that, if present, their numbers must be so small that it is almost inconceivable that any of them could ever survive passage through the storage reservoirs and reach the filter beds, which in their turn remove about 98 per cent. of bacteria of all sorts.

Storage.

Dr. Houston calls attention to the striking fact that has been shown in his past reports that London is not really drinking merely filtered *raw* river water, but *raw* river water which by storage processes has been purified bacteriologically antecedent to filtration to a remarkable extent. If all the prefiltration waters were mixed in their respective proportions, the quality of the mixed water antecedent to filtration would be such that on the average about one-third of the samples would contain no typical *B. coli* in 10 c.cm. of water. When it is remembered that 88.3, 53.9, and 14.5 per cent. of the samples of *raw* Thames water contain typical *B. coli* in 1 c.cm., 0.1 c.cm., and 0.01 c.cm. respectively, the corresponding figures for the Lee being 87.1, 48.1, and 7.4 per cent., the transformation the river water has undergone *previous* to filtration becomes strikingly apparent. Nor does even this represent the highest level of efficiency. Under different and elastic regulations as regards abstraction of river water and a more complete system of "pooling" of stored water interests, over one-half the samples (individually as well as collectively) of prefiltration water ought to contain no typical *B. coli* in 10 c.cm. of water. Even putting sedimentation and devitalization completely on one side, he says, the "levelling" effect of storage renders the possibility of any sudden accidental concentrated and dangerous pollution of the river water above the "intakes" a matter of much less grave concern than would otherwise be the case. Storage, in this sense, is equivalent to dilution, inasmuch as it "spreads" the dose of poison over weeks or months, and it may, indeed, quite apart from any question of devitalization, render innocuous a microbial contamination which in a concentrated form would be apt to be highly dangerous.

Filtration.

Dr. Houston points out that the rate of filtration at the different works is unequal, and would seem to bear no apparent relation to the variable quality of prefiltration water. Other things being equal, the rate of filtration at a works should be largely governed by the quality of the water that is being filtered. All the filter beds should have separate filter wells for sampling purposes. It is not sufficient that the quality of the mixed filtered water is good; it is most desirable that each of the filtration units should be in *proven* and perfect working order. The desirability of using only stored water becomes the more apparent when it is remembered that when a filter bed is yielding unsatisfactory results the filtrate cannot, generally speaking, be run to waste until the reports are of a more reassuring character. Speaking generally, it would seem to be safer to use a coarse sand and filter rapidly when dealing with an *adequately* stored water than to use a fine sand and filter slowly when dealing with *raw* or inadequately stored river water. In the former connexion, as pointed out in a previous report, mechanical filters may play a useful part, owing to the ease and rapidity with which they can be cleaned, but it is possible that the old sand filters, if worked under slightly altered conditions (for example, using coarser sand and filtering more rapidly), may greatly increase their field of usefulness. The only way, apart from sterilization, of rendering the prefiltration water always comparatively, if not absolutely, innocuous, is by sedimentation, devitalization, and equalization—in other words, by storage.

Service Reservoirs.

Service reservoirs should never be so small as to lead to variable rates of filtration during the twenty-four hours, hence a "pooling" of service reservoir accommodation is desirable. The equalizing and delaying effect of even transitory storage in service reservoirs is the culminating step in the protection afforded to the water consumer.

The Water as finally delivered to Consumers.

Seven years' work on the London water question has convinced Dr. Houston that to a progressively increasing extent the Water Board are securing the reasonable if not absolute "safety" of the metropolitan water supply. As a counsel of perfection, he still feels bound to advocate the choice of an initially pure source of water supply; but his own results and experiments seem to indicate clearly that the evil effects even of an impure source can be largely, if not entirely, annulled by adequate storage and efficient filtration.

The Question of Accident.

Dr. Houston again points out that in addition to filtration and storage it is also necessary to guard against the possibility of accident. In this connexion questions of drainage, health of workmen, suction of impure water into water mains, laying of new mains, alteration to existing mains, condition of service reservoirs, etc., deserve attention. There is a growing tendency to regard any sudden accidental gross infection as of most dangerous significance, and to consider more constant but highly diluted pollutions as, relatively speaking, of lesser importance. The method of water purification now in progress (storage) renders the position "safe" as regards the river water provided that no fresh and dangerous contamination takes place in connexion with the storage reservoirs, the filter works, the service reservoirs or the delivery mains. Dr. Houston's final opinion is that the "*quality* policy" of the Metropolitan Water Board should be directed towards securing an "epidemiologically sterile" water (that is, a water containing none of the microbes associated with water-borne epidemic disease) *antecedent* to filtration by means of storage (sedimentation, devitalization and equalization), aided, if need be, by the occasional employment of supplementary processes of water purification.

Complaints from Consumers.

Dr. Houston says that relatively to the population very few complaints reach the department as to the quality of the water. During the period under review only ninety were received. The commonest compaints are as follows:

Presence of suspended matter, hardness, colour, deposit on boiling, smell, and taste.

Exceptional cases apart, investigation is made and samples are collected on the same day as the complaint is received.

Alterations to mains, fresh connexions, variations of pressure, and other matters common to all water supplies, account usually for the transitory and local pressure of suspended matter in the supply.

As regards *hardness*, the water varies only slightly in this respect, but consumers sometimes are of the belief that

some increase has suddenly taken place. The deposit of lime salts on boiling is another fact, which at times appears suddenly to strike the consumer as new. During the winter months of the year the water is browner in colour, but as compared with moorland supplies the London water may be considered, relatively, very free from brown coloration. As regards smell and taste the cause, if really existent, is usually found to be associated with foul cisterns. On several occasions dead and decomposing starlings, sparrows, bats, and mice have been found in the cisterns. Sometimes, however, the defects complained of appear to be due to imperfect circulation of water, to new mains, or to joints made with taste-imparting materials.

Research Work.

Several special researches have been undertaken during 1905–12 and eight reports have been issued:

A special report (First Research Report) on the vitality of the typhoid bacillus in samples of *raw* Thames, Lee, and New River water. Another research (Second Research Report) which occupied twelve months involved special search for the typhoid bacillus in samples (collected weekly) of *raw* Thames, Lee, and New River water. The results were negative. A special report (Third Research Report) on the question of storage was published in March, 1909. A report (Fourth Research Report) on the vitality of the cholera vibrio in *raw* river water was also published in the same year. A fifth report on research work was published in 1910, dealing with: (1) The results of the examination of samples of *raw* Thames and Lee water for the presence of the typhoid bacillus and Gaertner's bacillus; (2) the results of the examination of the *raw* river waters (Thames, Lee, and New River) for faecal streptococci; (3) the results of the examination of the pre-filtration water—that is, representative samples of practically all the London water (*raw*, stored, gravel, well, and mixed water) *antecedent* to filtration; (4) the negative results of the examination of samples of *raw* Thames, Lee, and New River water for the presence of Morgan's No. 1 bacillus; (5) the isolation of cholera vibrios from samples of *raw* river water *artificially* infected with only a few vibrios. A sixth report on the comparative vitality of "uncultivated" and "cultivated" typhoid bacilli in artificially infected samples of *raw* river water, with special reference to the question of storage, was also published in 1910. A seventh report was published in 1911. It dealt with (1) pathogenic microbes; (2) uncultivated bacilli; (3) temperature; (4) *B. coli;* (5) rapid sedimentation; and (6) coagulants. In the present year (1912) an eighth report on the softening, purification, and sterilization of water supplies (excess lime method) was also published.

The report is a most valuable document to all interested in the scientific and practical problems with which it deals, and Londoners in particular have reason to be grateful to Dr. Houston for his vigilance in watching over the purity of their water supply.

ANNUAL REPORT OF THE MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD.

THE annual report of the medical officer to the Local Government Board for England and Wales for 1911–12 [1] consists, as usual, of the report proper and the appendices which contain, with other subsidiary reports, the auxiliary scientific investigations.

Diarrhoea and Enteritis.

In his general review of the public health in 1911 Dr. Newsholme states that the slight increase in the death-rate was due to the high mortality from epidemic diarrhoea. In order to obtain more reliable statistics the deaths from diarrhoea and enteritis under the age of 2 are to be taken together, for there is little doubt that cases of epidemic diarrhoea are often certified as enteritis. The mortality from diarrhoea and enteritis rose in 1911 to 43.7 per 1,000 births. The important question is whether there had been any improvement in the diarrhoea mortality which can be ascribed to sanitary efforts, and not to cool summers. The falls in 1908, 1909, and 1910 must be partly ascribed to the cool summers. The only recent year which can be compared with 1911 is 1899. During the third quarter of 1899 the mortality-rate per 1,000 births was 255, whilst in 1911, although the mean temperature was a little higher, the mortality-rate was 201. Thus there has been a definite improvement.

[1] The Forty-first Annual Report of the Local Government Board: Supplement containing the Report of the Medical Officer. (Pp. lxxx and 366. 3s. 8d.)

Enteric Fever.

The enteric fever-rate showed a slight increase, due probably to the hot summer. As the enteric fever-rate is one of the best indices of the general sanitary efficiency of a district, the local incidence of enteric fever is very interesting. The medical officer writes: "The counties of Durham, Lancashire, Northumberland, Yorkshire (West Riding), and Monmouth maintain an unenviable notoriety for avoidable loss of health and life from this disease, as well as for excessive infant and child mortality." Further analysis shows that four-fifths of the entire population live in sanitary areas with an attack rate of under 0.5 per 1.000. The complete extermination of enteric fever, therefore, seems to be within manageable compass. It would involve: (1) Sanitary reforms in certain districts; (2) protection from infected foods, such as milk, ice-cream, and contaminated shellfish; and (3) treatment of all cases under the best conditions. The eating of mussels has been incriminated in some epidemics, and attention is drawn to some from the river Exe.

Measles, Scarlet Fever, and Diphtheria.

The measles rate has shown a slight rise, and attention is drawn to the fact that in addition to the deaths directly due to measles there are also a large number of cases of deafness acquired from measles, and also many cases of death from tuberculosis where a latent focus of tuberculosis has been roused to activity by measles. The medical officer urges the advisability of instituting notification from schools as well as from medical men, arrangements for obtaining an accurate diagnosis by means of the employment of an adequate staff (medical and others), arrangements for isolation, urging upon the parents the necessity for obtaining medical advice, and, finally, advice by visitors upon the nursing and care of the patients. Both in London and in the provinces there has been for some years a steady fall in the death-rate from whooping-cough, due, probably, to better care of the infants. The rates for scarlet fever and diphtheria show a slight fall.

Small-pox and Vaccination.

Small-pox is now a very small item, but as the diminution of "home-produced" cases progresses, the small number of imported cases becomes relatively more important. The same remarks apply to both typhus and enteric in Liverpool. Vaccination is still on the decline. The percentage of vaccination has fallen from 59.8 to 55.8.

Poliomyelitis.

The medical officer makes little comment on the reports upon poliomyelitis in Cornwall and Devon beyond pointing out the difficulties due to ignorance of the mode of infection. A grant has been made in aid of research on this subject.

Puerperal Fever, Erysipelas, and Ophthalmia Neonatorum.

In regard to puerperal fever, erysipelas, and ophthalmia neonatorum, there is a need for more hospital accommodation. The numbers of cases are not large, therefore "the problem is a small one, but when it arises urgent in character."

Tuberculosis.

A large space is devoted to the administrative control of tuberculosis. The problems are discussed in a very broad and fair manner, with the general conclusion that all possible sources of infection, both human and bovine, must be attacked without waiting for solution of certain academical questions as to the mutability of the bovine, human, and perhaps avian, forms of bacilli. A more general attack on tuberculous milk is advocated, as is the attempt to trace the source of infection in different cases.

International Sanitary Conference.

The full report of the International Sanitary Conference in Paris to discuss and formulate regulations for the control of plague, yellow fever, and cholera is translated in the appendix, but probably most readers will be satisfied with the comment: "The new convention confirms the principle that efficient sanitary organization is the best safeguard against imported disease, and that quarantine and other measures that are burdensome to commerce and impede free communication between nations defeat their own ends by putting a premium upon evasion."

Plague.

It is satisfactory to learn that there was a slight diminution of the area in East Anglia which had been infected with rat plague. One human case was discovered, and this was apparently due to infection whilst skinning a rabbit caught in the infected area.

Food Inspection.

Food inspection and the researches of the food inspectors having raised a certain amount of apprehension that the bleaching of flour and the addition of improvers are not without danger, legislation is considered to be necessary, and it is stated that the Board has the question under its consideration.

Auxiliary Scientific Investigations.

In dealing with the auxiliary scientific investigations (which will be summarized in a later issue) Dr. Newsholme makes some exceedingly interesting remarks on presenile mortality. It is well known that there has been in the last few decades a remarkable decrease in the death-rate. On analysis it appears that the decrease is largely confined to the age periods under 45-50; there has been a slight increase from 65-75 in the case of men.

Thus for the age period of 20-25 England and Wales shows better figures than any other European country, whilst for the period of 55-65 (men) there are only two countries with a worse rate. The statistics show that the causes of death in this period are: First, disease of the heart and vessels; secondly, disease of the respiratory system, including pneumonia; and, thirdly, malignant disease.

Cancer is already the object of serious investigation by public bodies, but with the exception of rheumatic fever little is known as to the factors which produce vascular disease. It is intended to devote some time and money to the study of this problem, and as a preliminary Dr. Andrewes has written a summary of existing knowledge on the classification and origin of arterio-sclerosis.

Like its predecessors, the report of the medical officer is a lucid and fair-minded document, which not only reflects the present position of existing knowledge, but probably anticipates a good deal of future work. There is one notable omission; the only reference to syphilis is one which tends to minimize its influence on the production of ordinary arterial degenerations.

STATE AID OF RESEARCH INTO MENTAL DISEASES.

A CONFERENCE of representatives of a considerable number of asylums for the insane throughout the country, called by the Visiting Committee of the Cardiff City Mental Hospital, was held on December 5th at the Guildhall, London, to discuss the desirability of pressing for Government grants towards the cost of specific researches in mental diseases.

The representatives were welcomed by the LORD MAYOR OF LONDON (Sir David Burnett), and the LORD MAYOR OF CARDIFF (Mr. Morgan Thomas) presided over the subsequent proceedings.

The resolutions submitted to the meeting by the conveners were as follows:

> That this meeting of representatives of the Visiting Committees of Asylums of England and Wales is of the opinion (*a*) that the prevention of insanity by heredity transmission and of acquired and recurring insanity, as also the cure of acquired insanity, are of prime importance to the State; (*b*) that it is expedient that State aid be given in the shape of grants towards specific scientific researches having for their object the prevention and cure of insanity, such grants to be made through the medium and upon the recommendation of His Majesty's Commissioners in Lunacy.
>
> That copies of the above resolution be forwarded to the Prime Minister, the Lord Chancellor, the Chancellor of the Exchequer, the Home Secretary, and the Commissioners in Lunacy.

The LORD MAYOR OF CARDIFF, in opening the discussion, spoke of the excellent work done in the comparatively few research laboratories at present attached to asylums. The English system of local government had delegated the administration of hospitals for the insane to local bodies, but often work might be done there that accrued to the benefit of the State; anything which tended to reduce insanity was of more than local advantage. Specific research often demanded expenditure far beyond what could be reasonably expected of a local institution, and in many cases medical superintendents and officers of asylums provided from their own private resources for research work. That was a state of things that should not be necessary. Under the Insurance Act the Government had set aside a grant of a million and a half to deal with tuberculosis, and a definite portion of this sum was earmarked for research work. Government grants were also available for research work in other departments of public health; indeed, it appeared that lunacy was the only disease in respect of which no research grants were made.

Sir GEORGE SAVAGE, in moving the resolution, referred to the advances of public opinion in regard to the treatment of the insane during the last forty or fifty years. Now, instead of the first consideration being to protect society from the dangerous lunatic, the treatment and, if possible, cure of the lunatic was regarded as of prime importance. Beside the "dominant" of heredity, there were a large number of causes of insanity, depending upon bodily and other conditions. It had come to be regarded as the chief function of the doctor to prevent disease, and if anything could be done to deal with such a disease as, for example, general paralysis of the insane, great benefit would accrue to the community. Although immediate results might not be obtained from research work, in the long run definite advances must occur, and this work could not properly be carried on by isolated efforts.

Dr. J. SHAW BOLTON, Superintendent of the West Riding Asylum, Wakefield, seconded the resolution. He alluded to the increase of insanity, mentioning that there were more than 135,000 certified lunatics in the country, or 1 to 269 of the general population. A diminution could only be brought about as the result of clinical, physiological, histological, chemical, and bacteriological research. Up to the present research work had been carried on by a few individuals, as the result of whose work the reputation of asylums had greatly increased. That this work had been possible was due to the public spirit of committees which had provided laboratories and means of research. Work of this kind which was not verified by others and tested in asylums throughout the country was of very little value, and it was important to give opportunities to medical officers of asylums of taking advantage of the work done in other institutions. The Government should contribute towards the cost of this work, because it was done on behalf of the public at large; grants would stimulate individual students and increase their sense of responsibility. At present it was not unknown for expensive research apparatus to lie about unused.

Sir THOMAS CROSBY, ex-Lord Mayor of London and President of Bethlem Hospital, considered that the *post-mortem* methods of research ordinarily employed in regard to insanity had not been productive. The misery caused by the terrible scourge of insanity was so widespread that it should be scientifically examined in the hope of reducing its incidence.

Dr. JAMES SOUTAR, President of the Medico-Psychological Association, explained that he was present as a representative of one of the registered hospitals for the insane and not as representing the association, which had not up to the present considered the question before the conference. He was entirely in sympathy with the principle of the resolution; in fact, he thought there should be some extension of its proposals. Nevertheless, he doubted whether it was wise for a meeting of representatives of visiting committees to express such definite views as regards the prevention and cure of insanity as were contained in Clause (*a*) of the resolution. That was not the place to discuss the effect of heredity in the transmission of insanity; many competent observers maintained that its influence had been somewhat overrated, and that its potency varied enormously in different cases. By approving of this portion of the resolution the meeting would be committing itself to the principle of the regulation of the propagation of the species. Examination of family histories over a long period showed that where a case of insanity occurred it was usually counterbalanced by a large number of competent persons from the same stock.

Neither could the meeting attempt to discuss the distinctions between acquired and recurring insanity—a matter which baffled medical men who had made a special study of this question. The meeting should content itself with urging upon the Government the importance of research in the direction of the prevention and cure of insanity. He also suggested that grants should be made towards the establishment of clinics for the treatment of cases of incipient mental disorder. In the case of well-to-do persons insanity, by being taken in time, was often checked because treatment—medicinal, dietetic, and general—could be carried out. Such persons went back to their ordinary mode of life without having been certified insane. The lot of the poor was in sharp contrast: they struggled against delusions and the signs of approaching insanity until they were taken to asylums. Clinics would be valuable schools for the young practitioner, who would learn to recognize the early symptoms of mental trouble, and this knowledge he could apply afterwards in general practice.

Sir N. W. HELME, M.P., agreed that clinics would be of immense value. He thought the proposed grants should not be made through the medium of the Commissioners in Lunacy, as that body was not controllable by Parliament.

Alderman CROWTHER, of the West Riding Asylum, thought there should be a pathological department attached to every asylum, and that the medical officers should have special knowledge of this subject. He considered that research would be best carried on at one national centre whose findings would be at the disposal of all the asylums. Such an institution should be provided entirely by the Government, and the results would be far more satisfactory than would be obtained as a result of grants to a number of isolated institutions.

Dr. E. S. PASMORE, Medical Superintendent of the Croydon Mental Hospital, urged that grants in aid would encourage emulation in scientific research amongst the medical officers of various asylums, and that more valuable results would be obtained as the result of work carried on throughout the country than at a central institution.

Dr. T. W. MCDOWALL, Medical Superintendent of the Northumberland County Asylum, said the medical profession had long desired to see the professional requirements of the junior men in the asylums improved. The difficulty was that most young practitioners had no idea of spending their lives as asylum officers, consequently they rarely applied their minds fully to the difficult problems peculiar to this class of work. From the isolated position of asylums those who were anxious to improve their knowledge of mental diseases had great difficulty in getting into touch with centres of teaching. The Medico-Psychological Association congratulated itself that it had succeeded in persuading several universities to open courses of instruction for asylum medical officers. Cambridge, Leeds, Manchester, Edinburgh, and Durham had instituted a diploma, but there were difficulties in candidates obtaining courses of instruction. On the question of mental clinics, Dr. McDowall mentioned that an experiment of a mental department of a general hospital with which he was acquainted was not successful, because few people realized when they were suffering from symptoms of incipient insanity. He did not agree with the suggestion of a central laboratory only; it was of the utmost importance to develop industry, research, and intelligence in every asylum throughout the country.

Dr. E. GOODALL, Superintendent of the Cardiff Mental Hospital, spoke of the work done in the laboratories of that institution, and remarked that research into mental diseases was becoming more and more difficult, recondite, tedious, and costly.

Ultimately the resolution before the meeting was carried unanimously in the following amended form:

> That the prevention and cure of insanity is of prime importance to the State; that it is expedient that State aid be given in the shape of grants towards the prevention, cure, and treatment of mental disease, and that copies of the resolution be forwarded to the Prime Minister, the Lord Chancellor, Chancellor of the Exchequer, Home Secretary, and Commissioners in Lunacy.

A deputation was appointed to wait upon the Home Secretary and the Commissioners in Lunacy to place before those authorities the views of the conference.

ASSOCIATION OF CERTIFYING FACTORY SURGEONS.

Annual Meeting.

THE annual meeting of the Association of Certifying Factory Surgeons was held at the Grand Hotel, Birmingham, on December 6th, the PRESIDENT, Dr. R. W. Edginton, being in the chair. The work of the council during the year was reviewed, the subjects exciting most discussion being the suggested amalgamation of associations of general practitioners holding public appointments and the proposed co-operation between certifying surgeons and officials of juvenile labour exchanges. As regards the former, there was unanimity of opinion that the association had satisfactorily fulfilled its function in the past, had received great assistance and worked most amicably with the British Medical Association in any troublous times which had occurred, was in a sound financial position, and that the loss of identity by being swallowed up would be distinctly detrimental. As regards the latter, it was acknowledged that it would be a distinct advantage to the work of the certifying surgeon if employment suitable to their physical condition could be secured, through the medium of juvenile labour exchanges, for those children who were rejected for employment for which they were physically unfit, and if treatment recommended for certain conditions which did not absolutely debar from employment were secured through the agency of these organizations. It was, however, pointed out that the certifying surgeon himself was able to secure suitable employment and treatment in a large number of cases coming under these classes. It was the general opinion that the Board of Trade should make arrangements for the payment of a small fee for each notification sent in by the certifying surgeon.

The following officers were elected for 1913:

President.—Dr. E. Rayner, Stockport.

Vice-Presidents.—Dr. R. W. Edginton, Dr. G. P. Bate, Dr. H. W. Langley Browne, Dr. T. E. Flitcroft, Dr. T. W. Heywood, Dr. W. F. Marsh Jackson, Dr. J. Dallas Pratt, Dr. A Garrick Wilson.

Honorary Treasurer.—Dr. Thomas Watts.

Honorary Secretary.—Dr. W. F. Dearden, 168, Trafford Road, Manchester.

Honorary Corresponding Secretary for Ireland.—Dr. H. C. Manley, Whitehouse, Belfast.

Honorary Corresponding Secretary for Scotland.—Dr. A. Scott, Glasgow.

Honorary Corresponding Secretary for London.—Dr. W. H. F. Oxley.

Dinner.

At the dinner held after the meeting, the PRESIDENT, in proposing the toast of the city of Birmingham, mentioned the great changes, both architectural and sanitary, which, since he came to reside in Birmingham forty years ago, had been brought about by its great and most enterprising municipality, and expressed the gratification to himself and members of the Association at being honoured by the presence of the Lord Mayor.

The LORD MAYOR (Col. Martineau), in reply, said that being neither a doctor nor employer, but only a solicitor, he could not speak with a very great amount of authority on the value of factory supervision. From what knowledge he possessed of the industries of Birmingham, he thought that the problem which demanded serious consideration was how much inspection should be inflicted and how much risk should be taken. He was quite satisfied that the large firms fully realized their responsibilities, and needed very little looking after, but with the very large number of small employers in Birmingham, it was undoubtedly a question of what should be done. Competition was so great that a too severe dealing might kill many trades, and it became a question whether such should continue to exist at all in England, or should be allowed to go. He thought the small traders should be treated leniently, and brought by degrees to the standard which was undoubtedly desired by all.

In responding to the toast of "The Factory Department of the Home Office," given by Dr. C. A. GREAVES, Dr. T. M. LEGGE paid a high tribute to the *camaraderie* of the certifying surgeons, and thought that gatherings of that kind, bringing together heads of the department and certifying surgeons from all parts of the country, did more than anything else to cement the good feeling which

existed. Their work was of great service to the department, and the information they were able to provide was valuable in many ways. Though the certifying surgeon at the present time moved in a sea of unexampled calm, he thought that, arising out of the Insurance Act and the Tuberculosis Regulations, something more would be required from him before long. Though notification might not be required through his ordinary examinations for the certificate, something of the kind might become necessary under "special rules." The number of quite voluntary reports sent in at the end of the year went far to prove that the certifying surgeon exercised a most humanizing influence in factories, the establishment of recreative facilities, mess-rooms, and first aid being largely due to his efforts towards social improvement.

Mr. HARSTON (Inspector of Factories), in giving the toast of "The Association," remarked on the growing prominence of the medical element in factory administration, and said that whilst twenty years ago it was not regarded as necessary to have the profession represented in the governing body, now the chief inspector was a member of the medical profession, and there were two medical inspectors. There was no limit to the extent to which medical investigation could now be utilized, and he was satisfied that the association exercised a great influence on the proper carrying out of the work of the department.

The PRESIDENT, in reply, said that when the certifying surgeon was weighed in the balance twenty years ago it was the association that brought the scale down on the right side, and since that time its influence had been pronounced in the direction of improving the standard of work. He was quite convinced that an undue interference with the investigation of the causation of injuries due to accident would be detrimental to this progress. His own investigations in Birmingham led him into places where he would never go otherwise, and gave him knowledge he could never otherwise obtain. Without the intimate acquaintance with machinery and processes so acquired he would be quite lost in his judgement as to the suitability of particular occupation to special physical conditions in the applicant. This class of experience made a certifying surgeon an expert in accident risk, and it was the younger generation of workers that reaped the benefit.

The toast of "The Visitors" was proposed by Dr. W. F. DEARDEN, and Dr. SAUNDBY and Dr. O. J. KAUFFMANN suitably responded.

LITERARY NOTES.

THE Syndics of the Cambridge University Press have decided to publish a series of volumes dealing with the various subjects connected with public health. The following are provisional lists of subjects, all of which will be treated by experts: A. The causation of tuberculosis, biting flies and disease, house-flies and disease, ticks and disease, serum diagnoses, the bacteriology of foods, methods of *post-mortem* examinations, tropical hygiene. B. Sewage disposal, water purification, school hygiene, physical education, ventilation, soils, subsoils and climate in relation to health, fever hospital administration, sanitary law and practice, sound and unsound foods, domestic sanitation, offensive and noxious trades, chemical analyses of foods. The series will be under the general editorship of G. S. Graham-Smith, M.D., University Lecturer in Hygiene and Secretary to the Sub-Syndicate for Tropical Medicine, of Pembroke College; and J. E. Purvis, M.A., University Lecturer in Chemistry and Physics in their application to Hygiene and Preventive Medicine, and Secretary to the State Medicine Syndicate, of St. John's and Corpus Christi Colleges.

It has already been stated in the JOURNAL that the Rev. E. G. O'Donoghue, Chaplain to Bethlem Royal Hospital, is writing a history of that famous old institution. Chapters of it are appearing in *Under the Dome*, the quarterly magazine of the hospital. The number for July contains Chapters XX to XXIII, copiously and beautifully illustrated. This history is most interesting and bears evidence of the most painstaking research on the part of the author. The magazine is excellently printed.

Although the wholesale emigration which, during the last few years, has taken place from almost every district in Great Britain is undoubtedly a very serious evil, it is by no means a new one, at least in that portion of the kingdom which lies north of the Tweed. History teems with instances of Scotsmen who, from mediaeval times onwards, have left their native shores to earn name and fame abroad, for in those days the constant disturbances at home had to a certain extent the same consequences as the taxation of to-day. In the Middle Ages the majority of these early emigrants gravitated towards France; but in the seventeenth century Scotland seems to have furnished mercenaries to almost every army in Europe. Dugald Dalgetty was no solitary instance of a Scottish soldier of fortune seeking the bubble reputation in the service of a foreign Power. A prototype of the laird of Drumthwacket is to be found in the October number of the *Old-Lore Miscellany of Orkney, Shetland, Caithness, and Sutherland* (Part IV, vol. v), which contained an interesting account of an Orcadian gentleman who began life in 1589 as plain James King, and died sixty-three years later as a Scottish baron and a Swedish peer. Like Scott's immortal major, King fought under Gustavus Adolphus during the Thirty Years' War, and returned to his own country in time to play a prominent part in the struggle between Charles I and his refractory Parliament. His services to the royal cause were so considerable as to merit, on the one hand, the bestowal of the title of Lord Eythan, and on the other a sentence of exile; and the new baron therefore withdrew to Sweden, where his military career under the king guaranteed him a warm welcome and a safe retreat. He had already received a pension and the order of knighthood on retiring from the Swedish service five years previously; and the Queen, whose eccentricity in this instance does not appear to have obscured either her judgement or her good feeling, now created her father's former companion-in-arms a peer (under the title of Baron Sanshult of Doderhalts), and granted him a further pension and an estate in Calmar. Here he seems to have spent the next six years in peace; but his reputation as a warrior was evidently not forgotten at home. In 1650 he received a commission as lieutenant-general in the army enlisted by Montrose for his last fatal expedition, but the Swedes showed no alacrity in responding to his call, and the old soldier, having failed to raise the necessary troops, resigned his commission. He died two years later, in June, 1652; and his adopted countrymen testified their gratitude by a grand public funeral and a tomb in Riddarholm Church in Stockholm. His portrait is still preserved by the Swedish nation in the castle of Skug Klöster, a just acknowledgement of the faithful service which he rendered to the most famous of their kings. The same number of the *Old-Lore Miscellany* contains a detailed description by Mr. Alfred W. Johnston of the old Norwegian sword dance mentioned by Scott in *The Pirate*, which was still to be seen in certain parts of Shetland at the beginning of the last century, but which has since died out; and a short account of the Rev. John Morrison, well known in Scotland as the author of a number of the paraphrases. The illustrations include an excellent reproduction of the beautiful "Orkney Portrait" of Mary, Queen of Scots.

In her *Memories of Victorian London* Mrs. L. B. Walford relates the following story:

> An old friend of mine, a clergyman, was travelling by [train], and at Chester a fellow-traveller got in, and they two had the compartment to themselves. The papers that day were full of Mr. Gladstone's illness, and my friend, who is an original and independent thinker, felt inclined to air his views upon the subject. According to himself, he thoroughly harangued his companion, enlightening him upon all the debatable ground, and pointing out both what the ailment really was and what ought to have been done for it—all of which was politely listened to, and not controverted.
>
> "He did not seem to have any opinion of his own, and I had it all my own way," said my friend; "but you may judge of my feelings when at Euston Station my fellow passenger got out before me, and his man came and popped down from the rack a leather bag bearing the name of 'Sir Andrew Clark'! Sir Andrew Clark! The great London doctor who had been summoned to Hawarden expressly for Mr. Gladstone's illness. What an old fool he must have thought me!"

It may be remarked that George Eliot in *Middlemarch* says that doctors have a special faculty, developed by much practice, of listening to nonsense without showing any sign of amusement.

British Medical Journal.

SATURDAY, DECEMBER 14TH, 1912.

NATURE'S ERRORS IN HEALING.

WE hear much in these days of healing by natural processes, and, of course, everybody recognizes there is a great deal of truth in the doctrine involved. It is not, however, by any means the new discovery it is thought to be by many enthusiasts of various mental complexions. The belief was largely acted on by many of the ancient Greek physicians. The Arabian physicians placed great reliance on drugs. Yet we find the great Arab, Rhazes, insisting that where a disease can be cured by diet drugs should not be used, and where simple measures suffice no complex treatment should be employed. No man left nature to her own resources more than Sir William Gull, who boasted that he hardly ever gave any physic. He wrote a paper with the ironical title, "Treatment of Rheumatic Fever by Mint Water," and a story is told of him that when a patient under his care at Guy's Hospital had made a good recovery from typhoid fever without medicine, and Gull congratulated him, the man ungratefully replied, "No thanks to you." Yet it was Gull who, in reply to someone who was speaking of the healing power of nature in some case, said "Nature is trying to kill the man." There is, in fact, besides the *vis medicatrix*, what we venture to call a *vis necatrix* of nature. It is in cases in which this baleful force is in operation that all the expectant methods, including faith healing, nature healing, and so forth, fail, and the healer's attitude at the bedside is accurately expressed by the gibe addressed to the Methodists of old as a meditation on death.

In the New York *Medical Record* of October 12th, Dr. Augustus Maverick deals in an interesting and suggestive manner with what he calls the blunders made by nature in treating disease. That nature does often go astray is what philosophers used to call the *ratio sufficiens* of the existence of the doctor. If nature were always successful in relieving pain, draining abscesses, and killing invading parasites there would be no room for medical art. Those who talk loudest of the healing power of nature must admit that in severe diseases, where she is left to take her course, the outlook for the patient is always bad. As Dr. Maverick puts it, "To turn a very ill person over to nature is like sending a dying consumptive to Egypt." "Compare," he says, "the breathless victim of pneumonia or the patient in the stupor of typhoid with one suffering from gall stones, who can be relieved by the knife, or the prey of malaria who can be cured by quinine." What can nature do in such cases? Go to! as Falconbridge said, we know her handiwork. It is death, speedy or lingering as the case may be, but always with suffering. In many cases of severe pain nature has no remedy; she allows the sufferer to faint or even die. Dr. Maverick invites us to consider nature trying to squeeze a renal calculus through sixteen inches of tubing one-fourth its diameter. Compare her workmanship with that of the surgeon and his knife. It is the surgeon who leaves least to nature to-day, and the progress of surgery is a record of triumph over diseases many of which were not so long ago considered to be within the province of the physician, who could do little for their relief and nothing for their cure.

Dr. Maverick points out that in ulcers and wounds the production of scar tissue is "nature's cure-all." This necessarily causes contraction, which on an exposed surface leads to disfigurement, or perhaps to the crippling of a limb; within the body, however, the results are terrible. Ulcers of the intestine, for instance, will in favourable circumstances heal well, but the cicatrization which is the result will gradually contract the passage. From this cause arise strictures of the pylorus, rectum, urethra and other passages, deformed joints, and many other conditions which cause infinite suffering, and unless relieved by art must in the long run prove fatal. A constricted pylorus may give rise to cancer; this is also frequently the final stage in nature's prolonged effort to heal an ulcer of the stomach, a torn cervix uteri, or a scarred gall bladder.

There is, again, acute inflammation, the swelling and pain of which are due not to the invading germ, but to the forces called in by nature to resist the enemy. We have heard from great surgeons of this being a natural process of cure and protection, and to a certain extent this may be admitted; but if the process takes place, say, in the larynx, nature if left alone infallibly kills the patient. Again, when inflammation goes on to abscess, nature may dry up the collection of pus, but she leaves behind adhesions to neighbouring structures; in other cases she with great pain will drive the contents of the abscess into the peritoneum. Who would leave an abscess of the appendix to nature when surgery is within reach? Nature may cure a stone, an inflammatory process in the intestine and elsewhere, but only after infinite suffering to the patient which may bring him to death's door. A cancer if left to nature is almost absolutely certain to cause death.

But it is not only in surgical cases that nature often proves herself inefficient. Dr. Maverick points out that of her own undoubted remedies nature often gives overdoses. Take the case of fever. It is now recognized to be a protective process, but when it becomes excessive it may kill the patient. Again, in attempting to compensate for what the failing heart and kidneys refuse to do, nature causes a great rise of the pressure in the vessels, and apoplexy may occur at any moment unless the doctor with appropriate remedies makes it fall. Cough is nature's method of removing irritating matter from the bronchial tubes, but nature often carries the cure too far—for instance, in phthisis, when it murders sleep, brings on bleeding, or helps the dissemination of infection. Persistent diarrhœa and over-production of callus leading to the entanglement of nerves are other instances of what may be described as excessive zeal in healing on the part of nature. Dr. Maverick concludes: "Let us realize once for all that, while it is human to err, it is also godly, and that in treating disease we do not have to follow too closely the rules laid down by a natural process which is more concerned with thinning out the whole race than with taking special pains to save individual members."

It may perhaps be said that in the great case of Nature *versus* Medicine Dr. Maverick plays the part of *advocatus diaboli*. But we think that in his main contention he is right. We have given only a few examples; the case against nature could be made much stronger. We may sum up the discussion with the aphorism that nature is very efficient when there is nothing particular the matter, as is happily the

case in a large number of human ailments. To those who place their whole trust in the healing power of nature, we would simply say: "There are cases of childbirth in which nature if left to herself would kill both the mother and the child." Is medical art superfluous in such circumstances?

A STUDY IN COMPARATIVE PATHOLOGY.

A BRIEF account was given in the JOURNAL of March 2nd, 1912 (p. 502) of some interesting work on pearl formation recently carried out by Dr. Jameson. His results have now been published in the form of a fully illustrated monograph which contains a complete critical review of recent work on the subject, with at the same time many important additions to our knowledge of shell formation and the process of repair following injury from mechanical and other causes. The subject has given rise to so much hypothesis and wild speculation that one is ready to welcome a really intensive study, as is that of Dr. Jameson, who has devoted the best part of a dozen years to the investigation. The chief value in his work, perhaps, lies in the opening up of a new line from the general pathological side.

The critical part of the monograph consists in a careful examination of the well-known "cestode theory" of the origin of pearls in the Ceylon pearl oyster, which has been fairly widely accepted since it was first published by Herdman in 1903, and which has taken its place in textbooks and popular literature as part of current zoological belief. This theory was announced as one of the principal results of a scientific mission undertaken for the Ceylon Government in 1902, and was subsequently elaborated in the work which has been carried on during the last ten years—first for the Ceylon Government, and later for the Ceylon Company of Pearl Fishers, formed in 1906. Herdman held that the centres of the most valuable kinds of Ceylon pearls contained, or consisted of, the remains of a tapeworm larva enclosed in a fibrous cyst, formed apparently by the surrounding connective tissue. The larva itself is a somewhat globular body with a knob-like proboscis, usually retracted within a toothed collar. Dr. Jameson, however, although finding these larvae throughout the tissues of the oyster, was quite unable to confirm the view that they occur in the centre of pearls or that they have anything to do with pearl formation. He believes that the dark bodies which often constitute the nuclei of pearls have as a rule a different origin. An important point which he insists upon is that a pearl can only arise within a sac of the shell-secreting epidermis formed in the subepidermal tissues, whereas these parasites occupy a more deep-seated position and have no such sac around them. He compares the condition of this parasite with that of the trematode (*Gymnophallus*) which gives origin to the pearls in the common edible mussel of our shores, and which normally stimulates the mussel to surround it, while still alive, with a sac of epidermal cells. Having arrived at the conclusion that pearl formation has no connexion with these tapeworm larvae Jameson proceeds to criticize Herdman's account of the life-history of the tapeworm. Herdman's idea was that the larvae in the oyster are the young stages of more fully developed larvae in the file fish and of adult tapeworms in large skates and sharks. The adult tapeworms are tetrarhynchs, that is, possess four retractile proboscides armed with hooks, whereas the larvae in the oyster have, as already mentioned, a single knob-like proboscis. At the same time larval tetrarhynchs do occur in other situations in the oyster, and Herdman suggested that these were advanced stages of the other larvae. This view is rejected, however, by such an authority as Shipley. With regard to the first-mentioned larvae Jameson believes that they are the young stages of an entirely different genus of tapeworms, namely, *Tylocephalum*. Admitting, however, that these larvae play no part in pearl formation the discussion of their life-history is robbed of much interest.

While the first part of Jameson's paper, attempting as it does to destroy an accepted theory, will probably attract most attention from the reader who has not specialized in the fascinating subject of the physiology and mechanism of the secretion of calcareous structures, the second part constitutes a most important contribution to our knowledge of the growth of the molluscan shell, and of the pearl which is a derivative of it. It contains a mass of descriptive matter, copiously illustrated, and abounds in new facts and bold and original interpretations of known phenomena. The structure of the various constituents of the shell is discussed, and the author, who is evidently a disciple of Bütschli, attempts to interpret them as the expression of the conditions under which calcium carbonate has crystallized slowly in the alveoli of a colloidal membrane. A very interesting point is that he ascribes the "lustre" of the pearl and of mother of pearl to the fact that the minute calcareous plates, which fill the alveoli of the albuminoid framework of the nacre, are little biconvex lenses, whose cumulative effect upon the light reflected from the successive layers of the pearl gives rise to this familiar and beautiful property.

As already mentioned, Dr. Jameson has been led to his conclusions as to the mechanism of normal shell growth by a study of the abnormal and pathological, and especially by an examination of the character of the "repair substances," which are secreted to make good an injury to the shell. Two constituents go to form the shell. The one is the albuminoid substance, conchyolin, which forms only a small part of a normal shell, but which in the event of injury can be poured out copiously; the other is the lime salt, the rate of secretion of which appears to be much less variable. When the shell has been injured and the animal is called upon to close a gap, the conchyolin is poured out, often at such a rate that a leathery membrane practically devoid of lime is formed. To this uncalcified membrane the author gives the name "amorphous repair substance." When the first effort at repair has been successful secretion takes place more slowly, and a certain amount of calcium carbonate is added, usually in the form of small scattered crystals, in the alveoli of the conchyolin. Sometimes these take the form of regular parallel rods. This "columnar repair substance," in its turn, passes over by imperceptible gradations of increasingly fine alveolar structure, through a material referred to as granular repair nacre, to the normal constituents of the shell. A study of these phases leads the author to the conclusion that the difference between the minute and regularly stratified alveolar structure of the nacre or pearly substance and the coarser substances, which can be readily reproduced in the laboratory, can be expressed in terms of the proportions of lime salts and organic substances secreted and of the periodicity of the secretion as determined by the control, or loss of control, of the secreting epidermis.

From this study of shell secretion the author goes on to a consideration of the structure of the dark nuclei which so often occur in the centre of pearls,

and which have been mistaken for the remains of tapeworm larvae. Apart from foreign bodies, such as sand grains and other granular matter of doubtful origin, the dark centres of pearls are for the most part made up of one or more of the aforementioned repair substances. The drawings of the centres of decalcified pearls, examined whole as transparent objects and again in section, show how dangerous it is to base conclusions on the appearance of the whole nucleus. Opaque bodies, which might well be mistaken in the first instance for the shrivelled remains of parasites, proved again and again on section to consist of concentric layers of amorphous and columnar repair substance such as might well be expected to result from the first efforts at secretion of a pathologically produced epidermal sac embedded in the subjacent tissues. Sometimes this repair substance surrounded a foreign body (not a cestode); sometimes no foreign nucleus could be detected. In many cases, especially in the inferior "muscle pearls," no nucleus at all was present. the pearl sac, however it may have arisen, having produced normal nacre from the first.

It is not altogether to be regretted that the author —partly, no doubt, from lack of material—has been unable so far to formulate a fresh theory as to the origin of the Ceylon pearl; he has wisely kept within the limits of his observations, but he implies that he is continuing his studies towards that end. He considers that future work will have to centre round the causes which lead to the formation of the epidermal pearl sac in the subepidermal tissues, and he apparently anticipates that in the case of the Ceylon pearl oyster, as in the edible mussel, pearl production will be found to be associated with a disease or infection, ultimately to be attributed to the specific action of one or more parasitic organisms. It is thus evident that, although he dismisses the cestode theory, he still clings to the idea of parasitic causation.

CLINICAL RESEARCH AND THE INSURANCE ACT.

THE autumn session of the General Medical Council was of unusually short duration, and was chiefly devoted to the consideration of penal cases, so that there was not much other business of general interest; but on the last day a motion was proposed by Sir Clifford Allbutt and seconded by Dr. Langley Browne which raised questions of much importance to the future of medicine. In form it was merely an instruction to the Insurance Act Committee of the Council, which is a watching committee, to give attention amongst other matters to any arrangements made for providing laboratory facilities under the Insurance Act, and conferring upon it powers to make representations to the authorities on behalf of the Council upon matters which came within its functions.

It might have been passed as a mere administrative instruction of no great significance had not the proposer and seconder in their speeches developed its real importance. The arguments rested upon the assumption that the Government was prepared to take steps to afford to general practitioners who might take service under the Act facilities for the application of modern methods of exact diagnosis such as the use of the x rays, and pathological and bacteriological investigations, which are specifically excluded from the scope of medical benefit. Sir Clifford Allbutt said that there was some reason to hope that early next year a small expert committee would be appointed by the Government to go into the question very fully, and to inquire how existing institutions or new institutions might be developed, not only for the assistance of urban and rural medical men, but also for the purpose of research, and how they might be linked up with methods for affording ready opportunities for consultation with experts working along special lines. Were such a committee appointed, he said, the Council should be in a position to speak with authority as to the kind of plan best adapted for the interests of medical education. Two alternatives have been proposed, the one that there should be a central institution in each country, the other that the scheme should take the line of developing the many institutions which already exist in connexion with universities or independent medical institutions. It was for the latter alternative that Sir Clifford Allbutt argued.

Some of the speakers who followed seemed to take it for granted that the future of clinical and research laboratories lay in the hands of the Insurance Commissioners. But the several bodies of Insurance Commissioners are not well constituted for organizing a scheme of this kind. Sir Clifford Allbutt, after pointing out that the private practitioner, even if possessed of the technical knowledge, has neither the plant nor the time to carry out the investigations now every day and hour conducted in clinical laboratories, deprecated the establishment of great central institutions. In the first place, such would oftentimes be too far off, and involve too much delay; in the second, they would run a great risk of becoming too bureaucratic and degenerating into mere clearing houses. He advocated the decentralization of such work, and held that it could only be successful if carried out at local centres for clinical aid and research. The antagonism between officialdom and free learning is not new. It has existed since the revival of learning. The State, more or less vividly, at divers times and in divers places, realizes that it cannot advance unless new knowledge is acquired and men are trained in it. New knowledge cannot be acquired without research, and research is only rarely profitable in the pecuniary sense to those who engage in it. Research therefore seeks either for endowment or State subsidies. For a generation or so—for a couple of centuries, if we include astronomy—the State has been ready to pay trained persons for the application of new knowledge to purposes of public utility. Only quite recently is it beginning to perceive that it is worth its while—in fact, its duty—to pay competent persons to find out new knowledge. It is also beginning to be realized that, owing to the fact that in the more efficient workers the appetite for knowledge is as little to be ignored as the appetite for food or air, it is not possible to get even the best routine work out of persons confined to such work. The seats of free learning, and chief among these the universities, while ready to accept State help, and willing to train men for the service of the State, and not objecting to the State testing their competence for the public service by examination or otherwise, have always been chary of accepting State control of their means of research and methods of teaching. We take it that it was this feeling—a feeling corresponding to the innate constitution of the intellect—which underlay Sir Clifford Allbutt's speech, though it was directed to an immediate practical issue.

Since the discussion in the General Medical Council the position has in a technical, political, sense changed, for it is now specifically stated that

"*x*-ray diagnosis and pathological or bacteriological investigations would not be services included in medical benefit." They would not be services which the insured person would be entitled to demand, either from his doctor or from the Insurance Committee. But the need for such modern methods of medical diagnosis and treatment has increased, is increasing, and cannot be diminished by Act of Parliament. That the need for the assistance which a properly appointed clinical laboratory, where pathological and bacteriological examinations can be made and vaccines and serums prepared, is felt by general practitioners is common knowledge. Resort is had to the clinical and pathological laboratories which already exist in connexion with universities and hospitals. More than one university laboratory is already so largely made use of by private practitioners that it is, on this side of its work, more than self-supporting, though the scale of charges has of set purpose been made low.

VOTING IN THE DIVISIONS.

THE reports of special meetings of Divisions called to vote on the question whether the Association should call upon the profession to refuse to enter into any agreement with Local Insurance Committees to give service under the Act upon the terms and conditions now finally offered by the Government are published in the SUPPLEMENT so far as they had been received up to the first post on Thursday morning. No attempt has been made to collect the votes, and no definite conclusion can be drawn in the present stage. The aggregate voting will be ascertained on Thursday, December 19th, and the result will be reported to the Special Representative Meeting called to meet in London on Saturday, December 21st. During the week several fly-leaves have been issued both for and against acceptance, and Dr. Addison has given an address in Birmingham discussing the terms now offered, and laying stress on the favourable aspect. References to these matters are made in the SUPPLEMENT, where also some further particulars of the provisional arrangements which the Commissioners propose for medical benefit from January 15th to April 30th, 1913, are given. The decision now being taken is of momentous importance, and the machinery provided by the British Medical Association is designed to afford to every practitioner an opportunity of recording his vote. The last proposals of the Government have been very fully placed before the profession in the last issue of the SUPPLEMENT; and in an editorial article published in the same issue of the JOURNAL (page 1635) an endeavour was made to analyse the terms as succinctly as their complex nature permitted. The Council, in the issue of the SUPPLEMENT of this week, has renewed its notice to the profession, pointing out that, pending the decision of the Special Representative Meeting and the publication of instructions issued under its authority, it is imperative that no negotiations or arrangements of any kind, temporary or otherwise, should be entered into by any Division or Provisional Medical Committee, or by any individual member of the profession with Local Insurance Committees or otherwise. The fact that Christmas Day will fall this year on a Wednesday will interfere with the ordinary routine of the publication of the JOURNAL. Owing to the three days' holiday in England it will be necessary to send the JOURNAL bearing date December 28th to press very early in the week, and no communication can be dealt with received later than the first post on Monday, December 23rd, and then only if of the briefest character. In order that the printers may be able to prepare for the early issue in the following week it will be necessary to go to press practically a day earlier than usual next week and correspondents who may desire to address the JOURNAL are requested to bear this fact in mind.

A CANDID REPORT ON SANATORIUM RESULTS.

So much has been written and spoken of late years on the so-called sanatorium treatment of tuberculosis that the average layman has almost as full a knowledge of its methods as the average doctor. But although the same facts are available for consideration, there are still wide divergences of opinion both amongst doctors and non-medical observers. While the optimists probably claim too much, the pessimists undoubtedly recognize too little, and the truth lies between them. It is now possible to form some judgement as to the relative amount of arrest of disease that may be claimed as a result of sanatorium treatment. As compared with the hopes held out to consumptives in former days, the actual results are lamentably small. But steady progress has been made in the direction of prevention, if not of cure. An interesting account of the experience gained at the Bellefield Sanatorium in Lanark, has recently been published[1] by the Resident Medical Officer, Dr. J. W. Allan. His report differs from that of many such officers in that it is the work of an experienced hospital physician of over forty years' standing, and is characterized by the moderation and common-sense acquired by long experience of other than special lines of practice. A full description is given of the routine methods of treatment. The statistics of the results obtained give ample support to the writer's contention that sanatorium treatment is able to set the tuberculous patient on the high road to recovery, but that it should not be held answerable for the results that may follow if that road is subsequently departed from. Incipient cases can be brought to a standstill, but of the more advanced cases it may be said that the progress of the disease is usually slackened, but seldom entirely arrested. The majority of cases, even of advanced tuberculosis, leave the institution in better case than they entered it, but treatment for them has its limitations. These limitations are fully recognized, but do not afford reasonable ground for wholesale condemnation of the system. The dangers of infection, like all public scares, have been absurdly exaggerated, and so far from a sanatorium patient becoming a source of danger to others, his knowledge of needful precautions renders him far less dangerous than the consumptive who has had no such training. But the fear of being regarded as infective undoubtedly deters many young people with incipient or suspected disease from entering a sanatorium, and it is most desirable that the plain facts with respect to the treatment, its advantages and its limitations, should be more widely known. Dr. Allan puts the case for the sanatorium in very convincing form.

TINNING AND THE TINPLATE INDUSTRY.

FEW of the Reports on Conditions of Employment and Manufacture issued by the Home Office have given such good descriptions of the processes of manufacture as those which appear in the report on tinning by Dr. Edgar Collis and Mr. Hilditch.[2] After a brief account of the origin and development of the tinplate industry the writers describe modern processes. It appears that in 1750 there were only four tinplate works in England and Wales; in 1875 there were 75. The yearly output of tinplates is 927,500

[1] *Glasgow Medical Journal*, November, 1912.

[2] Report on the Conditions of Employment in the Manufacture of Tinplates, with Special Reference to the Process of Tinning. By Edgar L. Collis, M.B., H.M. Medical Inspector of Factories, and J. Hilditch, H.M. Inspector of Factories. (London: Messrs. Wyman and Sons, Fetter Lane, E.C. Price, 10½d.)

tons. About £2,000,000 is spent on wages annually. From its commencement it has always been a Welsh industry; 96 per cent. of the tinplate works are situated in the counties of Glamorgan, Caermarthen and Monmouth. The authors mention the particular types of accidents which may happen to the workmen in the various processes. In some of these the men are exposed to high temperatures, in others to dust and fumes. The accidents are for the most part burns and lacerated wounds of the hands and contusions of hands and feet caused by falling metal. In some of the processes women and girls are employed as well as men. Women are not exposed to the high temperatures or dust, but they carry heavy weights. It is not uncommon for girls of 16 to 18 years of age to carry bundles of iron plates weighing from 60 lb. to 70 lb. from the sheds where the bundles are opened to be pickled by men who plunge them into a fluid containing dilute sulphuric acid to remove any iron oxide which may be present. The carriers of plates cannot keep themselves clean, tidy, or dry, for the floors are wet. After being pickled the plates are placed in a "black annealing" furnace, so that they may become softened, and in order that any water stains may be removed. On withdrawal from the furnace the plates, after being allowed to cool, are passed through chilled cast iron rollers to receive a good surface. The plates become rigid and hard in consequence of the cold rolling, and are again annealed and pickled in a weaker acid solution before being dipped in the bath containing molten tin. Workmen in the tinning department are exposed to fumes from the flux pot, the fumes from burning palm oil or the grease which floats on the molten metal, and to dust from the materials used to clean the plates after they have been tinned. Zinc chloride is sometimes used as the flux agent instead of palm oil. Shortly after the introduction of this metallic chloride the men struck work, as they believed the fumes made them ill. When twelve years ago Professor Attfield investigated the matter, he found the atmosphere to be free from arsenic, which might possibly have been present had an impure zinc been used. Zinc chloride did not appear to him to be a cause of illness, but he thought that to the fumes of hydrochloric acid might be attributed such symptoms as coryza, dryness of throat, a sense of oppression in the chest, loss of appetite, nausea, constipation, and weakness of the limbs. To these complaints the fumes from the palm oil and grease probably contributed, owing to the acrolein and acrylic acid which they contain. Cleaning of the finished tinned plates with the sweepings of the floors of flour mills and rubbing off by means of pads of sheep's skin is a dusty process. All forms of hoods and mechanical exhausts have been tried as a substitute for hand cleaning, but only with qualified success. Taking the processes generally, the largest number of accidents occur in the melting department. Males suffer more from accidents than females—in the proportion of 10 to 1. Dr. Collis draws attention to the prevalence of cancer among tinplate workers, and to the large number of deaths from phthisis probably due to dust. Phthisis is specially prevalent among furnacemen and those who work at the rollers. The physique of youths from 14 to 19 is below that of Post Office candidates, but it is better than that of Sheffield grinders and cutlers. Mention, too, is made of the readiness with which workers in metal dust lose their power of chest expansion, a circumstance which tends to aggravate the harmful effect of dust upon the lungs. Taking the deaths from respiratory diseases, including phthisis, expressed as percentages of deaths from all causes, tinplate workers at the ages of 20, 25, and 35 give 54.6, 52.8, and 48.3, as against 45.9, 46.2, and 41.9 respectively for all males in England and Wales. Dr. Collis supplies an interesting table, showing that increased blood pressure accompanies small chest expansion. A draft of proposed regulations is printed in the appendix.

THE DISCOVERY OF CHLOROFORM.

WE learn from Mr. Alexander Spence, member of the Pharmaceutical Society and ex-bailie of the Royal Burgh of Linlithgow, that it is proposed to commemorate the centenary of the birth of Mr. David Waldie, who suggested the use of chloroform as an anaesthetic to Sir James Simpson. There has been a great deal of misunderstanding and controversy about this matter, and it is difficult, as it usually is in such matters, to get at the exact truth. We took considerable trouble to ascertain the facts in preparing an article on the history of anaesthesia which appeared in the JOURNAL of October 17th, 1896. Of the original experimenters, the only survivor at that time was the late Dr. George Keith, who wrote characteristically that it would be better if the whole business were buried in oblivion! Simpson's own account is as follows: "Latterly, in order to avoid, if possible, some of the inconveniences pertaining to sulphuric ether, particularly its disagreeable and persistent smell, its occasional tendency to irritation of the bronchi during its first inspirations, and the large quantity of it required to be used (more especially in protracted cases of labour), I have tried upon myself and others the inhalation of different other volatile fluids, with the hope that some one of them might be found to possess the advantages of ether without its disadvantages. For this purpose I selected for experiment and have inhaled several chemical liquids of a more fragrant or agreeable odour, such as chloride of hydrocarbon, etc. Then Mr. Waldie, a Linlithgowshire man, first named perchloride of formyle as worthy, among others, of a trial." Dr. Jacob Bigelow, of Boston, and Mr. Jacob Bell, a well-known London pharmacist, had both previously tried chloric ether, and Mr. Bell's experiments had been so successful that Mr. Lawrence used it in surgical operations. Bell, however, failed to recognize that it was the chloroform in the chloric ether which produced anaesthesia. Mr. Waldie, who was then connected with the Apothecaries' Company at Liverpool, seems to have guessed that chloroform was the active agent, and he promised to procure some for Simpson. There was, however, some delay in carrying the promise into effect, and in the meantime Simpson, who was not a man to let the grass grow under his feet, got some chloroform from Messrs. Duncan and Flockhart, of Edinburgh, and forthwith began to experiment with it on himself and his assistants, George Keith, Matthews Duncan, and others. The first trial of chloroform was made in Simpson's house on November 4th, 1847, and Miss Eva Blantyre Simpson, in her *Life* of her famous father, quotes the following passage from a letter written by him to Mr. Waldie: "I am sure you will be delighted to see part of the good results of our hasty conversation. I had the chloroform for several days in the house before trying it, as after seeing it such a heavy unvolatile-like fluid, I despaired of it, and went on dreaming about others. The first night we took it, Dr. Duncan, Dr. Keith, and I all tried it simultaneously, and were all 'under the table' in a minute or two."[1] Let Mr. Waldie have all the credit of having suggested the use of chloroform. We therefore hope that the movement to place a bronze tablet, with a suitable inscription, on the house in Linlithgow where he lived, will receive the support of the medical profession. It is somewhat unfortunate, however, that in recent years exaggerated claims have been made on Mr. Waldie's behalf. He did not discover chloroform, which as a chemical substance was identified independently by Soubeiran in 1831, and Liebig in 1832. Nor was he the first to discover its anaesthetic properties. On March 8th, 1847, J. P. Flourens read a paper before the Académie des Sciences on the effects of chloroform on the lower animals, but as in the case of Humphry Davy's discovery of the pain-subduing power of nitrous oxide gas in 1800, no notice

[1] For a full account of the discovery of chloroform see BRITISH MEDICAL JOURNAL, October 17th, 1896.

was taken of the communication. Whoever first guessed or even showed that chloroform possessed anaesthetic properties, however, it is certain that its use in surgery and obstetrics was established by Simpson, but for whose brilliant and strenuous advocacy the agent would in all probability never have gained a footing in medical practice. It was his daemonic force that beat down all opposition, and it must be remembered that he had many powers of darkness—within as well as without the profession—to battle against. Therefore, James Young Simpson is truly entitled to be called the discoverer of chloroform.

THE WELFARE OF THE DEAF.

IN the third of the series of lectures which Dr. Kerr Love, of Glasgow, is delivering at the Royal Sanitary Institute, under the auspices of the National Bureau for Promoting the General Welfare of the Deaf, the speaker claimed that if deafness was to be prevented there must be decent and healthy conditions for the children of the poor during the first years of life. Like a plant or other young animal, they must have room to grow, and simple, clean, and free conditions of life. This was the first step for the prevention of infantile or sporadic congenital deafness. This view was based on an inquiry into the home conditions of the inmates of the Glasgow Institution for the Deaf, numbering 180. The children whose homes were in Glasgow numbered 76, and in these homes grave conditions of overcrowding existed, the average number of inmates to each apartment being 3.145. Dr. Kerr Love did not claim that overcrowding was itself a cause of deafness, but that it connoted various unfavourable circumstances and direct causes, such as uncontrolled use of alcohol, parental neglect, and untreated syphilitic disease. It was to untreated syphilis that he pointed as the probable cause of a vast proportion of all cases of deafness observed during the first months of life, and he supported this suggestion by some twenty family records relating to cases in which the Wassermann test had been applied to every living child, and whenever possible to the mother. In these twenty families there had been 167 pregnancies, 93 children being still alive, and 74 had died in childhood, or had been born dead. Among the 93 living children as many as 30 were either deaf or blind, while many others presented, apart from a positive Wassermann reaction, other evidences of syphilitic inheritance. Dr. Kerr Love also suggested that untreated syphilis in the parents and unrecognized syphilis in the children probably lay at the root of much of the meningitis to which so many children succumbed. The remedy which he put forward was notification of syphilis whenever it appeared in children, followed by the immediate treatment of both mother and children. Even if fresh legislation were necessary for the purpose the cause was urgent enough to warrant it, but as a matter of fact recent legislation had placed the machinery required ready to hand. "Like most of my profession," he said, "I have many faults to find with the National Insurance Act. But maternity benefit will be claimed, even for dead-born children, and for all children who die shortly after birth; and if the Commissioners insist of a certificate of the cause of death, the syphilitic families will be discovered, and without any public disclosure of the reason for the step, treatment will be instituted which will counteract the poison in the blood of the mother, and will save the children of the future. The disease is very amenable to treatment, and it is because it is untreated that it passes down to the children."

PHARMACY REGULATIONS IN NEW ZEALAND.

IN the autumn session of the House of Representatives of New Zealand this year two new clauses were introduced into a Pharmacy Bill then under its consideration. Briefly summed up, they made it an offence for a registered chemist to pay to any medical practitioner any money or other consideration by way of commission on prescriptions signed by him, or to supply to a medical practitioner prescription forms containing any notification regarding such chemist. The penalty imposed was £20. Adoption of these clauses was urged on the ground that the practices at which they were aimed were common in New Zealand and detrimental to the public interest. The Government maintained that these practices, if they existed at all, were limited to a very few individuals, but nevertheless accepted the suggestion conditionally on the law officers of the Crown finding that the clauses could properly be introduced into the bill as it stood. On the same occasion an attempt was made to introduce other clauses to the same effect, but specifying medical men, that is, forbidding a registered medical practitioner to accept or seek any kind of commission on prescriptions, or to use prescription forms bearing the name of a registered chemist. It was also suggested that it should be made illegal for a medical man to write a prescription in code form, that is to say, in such form that only a particular chemist could make it up, or to tell a patient where to present a prescription for dispensing purposes. The Government, however, refused to accept these further amendments, on the ground that whatever view might be taken of them a Pharmacy Bill was not the place for their insertion. The wisdom both of the accepted and rejected rules seems to us somewhat dubious. In every country there should be a general law against the acceptance of secret commissions, but in adopting the principle of such a law it can hardly be desirable to pick out any particular class of workers. Further, in the case of medical men and pharmacists the practices at which such laws aim are so foreign to the ideals of both occupations that, as the Government maintained, they cannot be generally prevalent in New Zealand. When they exist the best way to kill them is to foster and maintain a high tone among the persons concerned. Such fostering is part of the ordinary work of the British Medical Association in New Zealand, as elsewhere, and Government and other authorities as well as leaders of public thought in that State can greatly assist it in its task by habitually treating the medical profession with marked respect and courtesy. The suggested rule as to medical men refraining from directing patients where to get their prescriptions dispensed, and invariably writing their prescriptions in such fashion that any and every pharmacist shall be able to dispense them, stands in a different category. It would no doubt be an invidious practice habitually to tell patients to get their prescriptions dispensed at a certain pharmacy or to write prescriptions in code, but it is easy to conceive circumstances in which both practices would be not only legitimate, but highly desirable in the interest of the patient himself.

REFRACTIVE CHANGES IN DIABETES.

IT is not at all unusual to find changes in the refraction of the eye in cases of diabetes. This generally takes the form of an increase in the refractive power; the patient becomes less hypermetropic or even myopic. The reverse change has, however, been noted by several competent observers. A transitory diminution in the refractive power takes place; the patient becomes less myopic or more hypermetropic. These alterations take place independently of the formation of cataract and are compatible with perfectly clear lenses. It is quite common, however, to find an increase in the refraction when actual cataract is developing, and the alteration in refraction may be a prelude to clouding of the lenses. In the *Annals of Ophthalmology* for January, 1912, Tentmayer of Philadelphia describes a case in which the patient's vision fell to $\frac{6}{60}$, but rose to normal with a lens of + 2.5 D. After a short time a lens of + 0.75 gave the best acuity. In this case and in others the alteration in the refraction was coincident with a fall in the amount of sugar excreted in the urine. The cause of the phenomenon is almost

certainly an alteration in the refractive index of the lens. A marked alteration in the refraction of an adult is always a pathological process, and in such cases the urine should be examined for sugar. When a myope begins to see clearly without his glasses he probably has diabetes.

THE CHURCH AND TEMPERANCE.

IN the eleventh Lees and Raper Memorial Lecture, delivered in Manchester last month, the Bishop of Lincoln[1] attempted to explain the apathy of his own Church towards the policy of local option with which his own name is identified. Until the Church of England adopted the cause of temperance with greater seriousness and self-devotion, temperance legislation, he said, would be delayed. But it is a narrow view that sees in legislation the sole aim of temperance work; the Bishop left unacknowledged and unmentioned the quiet but invaluable work done in every diocese to inculcate a knowledge of the properties of alcohol and instruct the rising generation in temperance principles. This work, often done by the unbeneficed clergy, with none of the glamour of fiery speeches delivered before enthusiastic partisans, ought not to be passed over in stating the attitude of the Church towards temperance. And if, as Dr. Hicks suggests, religion is chiefly manifested in helping our neighbours, succouring the weak, and reforming the world, it is far from desirable to forget that the Police Court Mission, established by the Church of England Temperance Society, carries out that ideal. Dr. Hicks repudiated the glosses of those who assert that when the Bible praises wine unfermented grape juice was referred to, and preferred to rest the biblical sanction for temperance upon the broad principles running through the fabric of Holy Writ. If the Church of England errs in not pressing forward to the support of local option, it can justify its attitude by the example of other denominations, in which large numbers are not so much apathetic towards, but hostile to, the legislation Dr. Hicks advocates. Indeed, the education of the rising generation in the truth as regards alcohol is one of the best means not only of preventing intemperance, but of preparing the way for legislation, whether it be that advocated by the Bishop or others. For all legislation, but especially temperance legislation, must spring from and rest upon an enlightened public opinion.

WHAT'S IN A NAME?

NOTWITHSTANDING Juliet's oft-quoted question there's much in a name. Byron said that Goethe was fortunate in the possession of a name sufficiently musical for the articulation of posterity, and pointed out that in this he had the advantage of some of his countrymen whose names might also be immortal—if anybody could pronounce them. If there is nothing in a name why should so many Levis and Lazaruses be so anxious to disguise themselves as Gordons and Sinclairs? A doctor with a name like Coffin or Death—and we have known instances of both—must be like a *memento mori* in a sick-room, and there are other names which lend themselves to cheap jokes inconsistent with professional dignity. On the other hand, there are names that come so trippingly off the tongue that they are in themselves almost a fortune to a doctor. It is lucky for a practitioner to have a name that marks him apart from his brethren. The value of this is shown by the importance rightly attached to the name under which they have won distinction by men whom the King delights to honour with a title. The recent death of Dr. Ramsay Traquair has reminded a correspondent of a Scottish contemporary of a passage in one of Robert Louis Stevenson's letters to J. M. Barrie: "My own uncle has simply the finest name in the world, 'Ramsay Traquair.' Beat that you cannot." On the other hand, Stevenson thought "Jerry Abershaw" the perfect name for a gentleman of the road. All novelists feel the subtle influence that lies in names. Dickens wandered about the streets studying the names over the shops and made lists of odd names for future use. Zola, we believe, did the same. But the fullest analysis of the relation between a man's name and his personality is given by Balzac of the sinister significance of the name "Z. Marcas." "That Z. which went before Marcas, which was seen on the address of his letters, and which he never forgot in his signature, that last letter of the alphabet. Marcas! Repeat to yourself that name composed of two syllables, do you not find in it a sinister significance? Does it not seem to you that the man who bears it must be a martyr? Although strange and barbarous, that name nevertheless has the right to go down to posterity; it is well compounded, easily pronounced, and short as all celebrated names should be. Is it not as soft as it is odd? But, further, does it not seem incomplete? I would not take it on myself to affirm that names have no influence on a man's destiny. Between the facts of life and the names of men there are secret and inexplicable concords or visible discords which surprise one; often correlations remote but effective are revealed in them." And Balzac goes on to interpret the hidden meaning of that hieroglyph "Z." "Do you not see in the construction of the 'Z' an impeded movement? Does it not represent the random and fantastic zig-zag of a tormented life? What wind has blown on that letter which in every language in which it has found a place commands scarcely fifty words?" "Examine," he again insistently calls upon the reader, "that name: Z. Marcas! The man's whole life is in the fantastic assembly of these seven letters. Seven! The most significant of the cabalistic numbers. . . . Marcas! Does it not give you the notion of something precious that is broken by a fall, with or without noise?" Balzac may perhaps be held to consider too curiously as to the significance of the name he has chosen for the hero of his short story. But there is a kind of relation between the name and the personality real enough to cause a shock when there is an incongruity between the qualities we had fancied the name to connote and those in the person when we meet him or her in the flesh. A well-fitting and sounding name is a distinct asset to a doctor. Parents should therefore be careful in choosing names for their progeny; how can a man, as Oliver Wendell Holmes says, call an innocent newborn child that never did him an injury "Hiram"?

THE OPHTHALMIC SURGEON'S ASSISTANTS.

EVERY manipulation of an eye which has been operated upon demands the greatest delicacy and gentleness; the slightest roughness may transform success into failure. The ultimate result of a cataract operation depends upon the exact observance of an elaborate technique both before and after the operation. In addition, the management of the patient himself is of vital importance; a tactful nurse will bring a patient to the operating table full of confidence and quiet courage, whereas a few unfortunate remarks may cause him to be nervous and, perhaps, almost unmanageable. In a paper headed "Some suggestions to those upon whose aid the success of the ophthalmic surgeon in considerable measure depends,"[1] Dr. Theobald gives much excellent counsel to assistants and nurses. The assistant's chief function is to fix the eye in an efficient and safe manner, any little awkwardness in a critical cataract extraction or iridectomy for glaucoma may cause extensive loss of vitreous. Sponging an eye, again, is a delicate act demanding great care. The observant assistant will often greatly help the operator by

[1] *The Church and the Liquor Traffic.* Eleventh Lees and Raper Memorial Lecture, by the Right Reverend the Lord Bishop of Lincoln, D.D. London: Macmillan and Co., Ltd. 1912. (Pp. 24. Price 4d.)

[1] *Johns Hopkins Hospital Bulletin*, vol. xxiii, August, 1912.

raising the upper lid, and should learn to do it correctly without hampering the surgeon with his hands. The ordinary nurse commonly fails to realize either the extreme delicacy necessary in handling an eye or the deference due to eye instruments. If not watched, she will seize them and throw them all together into a basin. She requires careful training and instruction. Eye lotions must be of the correct strength and temperature, and swabs and tampons must be proportionate to the size of the organ which is being treated. The patient must not be exposed to glaring light when his eye is examined for the first time after an operation; a candle affords quite light enough. Dr. Theobald advises the dispenser that alkaloids should not be rubbed up in a mortar, a proceeding which is exceedingly liable to lead to contamination: it is sufficient to place the drug in a clean vial, pour in the water, and be satisfied with shaking. Finally, the after-care is as important as the operation, and demands even more experience.

BELGIAN ANTIQUACKERY LEAGUE.

THE Belgian Antiquackery League founded at Antwerp not long ago, under the presidency of Dr. Gunzburg, has already a considerable membership. Dr. W. Broeckhart has been appointed general secretary. The League has just issued a manifesto, addressed to the public and to the medical profession, in which it points out that it is proposed to study the products offered in such abundance to the public as tonics, invigorators, and so forth, and to distinguish between those which are really of use and those which may be harmful to health. We commend the following passages to a number of worthy persons who at present are active in minimizing the importance of a legal qualification: "The diploma demanded of doctors and pharmacists should arouse their sense of responsibility and be a guarantee of the interest it is their duty to take in the public health. It is the public that has insisted on the stringent tests which must be satisfactorily undergone by doctors and pharmacists in order to obtain their diplomas. It was in its own interest that the public, which did not wish to be at the mercy of the fraudulent exploitations of the quacks of a former day, saw the need of honest and devoted men possessed of sufficient knowledge to apply intelligently the recognized methods of treatment. Our confidence in these men should be sufficient to make us look to them for the necessary help in the safeguarding of the general health. Experience has shown that the medico-pharmaceutical body is worthy of this confidence; moreover, the solidarity of the human race makes it impossible to separate the interest of the patient from that of the doctor. The fight against quackery must be undertaken especially for the benefit of the sick." Elsewhere it is said that quackery is a sore that eats especially into nations where civilization has reached a high degree of refinement; "absorbing the living strength of a country, quackery gradually leads it on to decadence." Beginning with the simple abuse of drugs it goes on to belief in panaceas, the advice of mediums, the immoralities of secret massage, and definitely criminal manœuvres. We wish the Belgian League all success in its philanthropic campaign.

THE FIFE BRANCH.

DR. R. BALFOUR GRAHAM was entertained at a complimentary dinner at Kirkcaldy on December 6th, when he was presented with a rose-bowl in recognition of his services to the profession as Secretary of the Fife Branch since its inception nine years ago. A large company gathered to do honour to the guest. Dr. Orr, President of the Branch, was in the chair. Mr. D. Wallace, C.M.G., Dr. Chalmers Watson, and Dr. Michael Dewar (Edinburgh), and several of Dr. Balfour Graham's friends from Leven were also present as guests.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

Milk and Dairies Bill.—A bill to make better provision with respect to the sale of milk and the regulation of dairies was presented by the President of the Local Government Board on December 10th, and ordered to be read a second time on Monday, December 16th, and to be printed. On the same day the President of the Board of Agriculture had informed the National Farmers Union that he hoped the bill, while fair to the general community, would not be unfair to agriculturists. It was important that there should be uniformity of inspection by local authorities, and he had been able to persuade the Treasury that it was fair that the country should compensate farmers for animals slaughtered in the interests of the country. A large sum would be necessary in the first place, but he believed that it would be a diminishing amount. If anything was to be done to get rid of consumption the root of the evil must be struck at.

Scottish Universities.—In response to further questions, on December 9th, the Permanent Secretary to the Treasury stated that its decision with reference to the four Scottish universities adopting a uniform and inclusive fee for degree courses was communicated to the universities in July, 1910, in a letter informing them that additional grants were being sought from Parliament. One of the bases of that decision was the approval of an inclusive fee expressed by the Elgin Committee, and it was reached after consideration of the observations on the report of that body by the Scottish Education Department.

Tests for Vision in the Royal Navy.—Mr. Peto asked on December 4th what regulations obtained in the Royal Navy as regards the tests imposed upon officers in respect to efficiency in colour and form vision; and whether, as regards the latter, the use of spectacles or other artificial aids to sight were permissible at sea? Mr. Churchill said he was informed that the regulations as regards form vision for all officers, other than medical, accountant, and chaplains, were that they must have full normal near and distant vision, as determined by Snellen's test types, without the aid of glasses. Colour vision was tested by the Edridge-Green lantern and assorted coloured wools, and all officers must be able to distinguish readily the primary colours. In the case of form vision no artificial aids to sight were permissible at sea, excepting in the case of those officers already mentioned, and also the use of telescopes and field glasses as an intermittent aid to normal distant vision. Mr. Peto asked whether the question of abandoning the wool test would be considered, seeing that it had proved wholly unreliable? Mr. Churchill replied that all those subjects were considered from time to time, and he believed the Admiralty test to be a good and safe one.

School Epidemics.—The President of the Board of Education, in reply to a question by Mr. Grant on December 10th, said he was aware that in some cases schools had been closed to avoid the reduction of grant which might follow from reduced attendance due to epidemic sickness. Such a measure did not always conduce to the effective control of epidemics, and should not be adopted except on competent medical advice. He was considering the reconstruction of the system of grants, but he was not in a position to make any statement on the matter.

Mental Deficiency Bill.—The Prime Minister has been questioned on several occasions as to the possibility of proceeding with the Mental Deficiency Bill this session, but has adhered to the decision not to do so. He has, however, promised that it shall be reintroduced early next session.

Insurance Act.—The answers of Ministers to questions in Parliament as to the National Insurance Act will be found in the SUPPLEMENT.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

LONDON.

London County Council.

The Maudsley Hospital.

It was reported to the London County Council on December 10th that the plans of the Maudsley Hospital for mental cases, prepared by the asylums engineer in consultation with the pathologist, Dr. Mott, had received the full approbation of Dr. Maudsley. The principal buildings provided for were: (1) The administrative building, which included a pathological laboratory and an out-patient department; (2) a hospital building of three floors, having on each floor a complete ward for eighteen male patients and two nurses or attendants; (3) a hospital building of three floors, having on each floor a complete ward for eighteen female patients and two nurses. The total number of patients to be accommodated was therefore 108. The provision of the pathological laboratory in the Maudsley Hospital buildings, which was an essential condition of Dr. Maudsley's original offer of £30,000, would involve the disuse of the present laboratory buildings at Claybury Asylum, and a scheme was being considered for their future use. It was anticipated that the ratio of nursing staff to patients in the hospital would be as 1 to 2.7—that is, 40 staff to 108 patients. The estimated cost of building was £48,000, and taken on the basis of 108 beds this was equivalent to £444 8s. 10d. per bed. Equipment would cost £8,000, or approximately £74 a bed.

Commenting on these estimates, the Finance Committee remarked that the cost of the buildings and engineering work in an ordinary asylum was between £230 and £240 a patient, but it was proposed to provide at the Maudsley Hospital an out-patient department and a pathological laboratory which were not provided in an ordinary asylum. Omitting the expenditure for these requirements the cost of building was reduced to £41,600, or just over £385 a patient. The difference was accounted for largely by the fact that the hospital was designed to accommodate and treat acute cases alone, and only a comparatively small number of these. It would appear, therefore, that a fair comparison could not be made between the cost of the hospital and the cost of a large asylum for 2,000 or more patients many of whom were chronic cases. Acute cases required a larger staff than chronic cases, because they must have constant attention and supervision, and, moreover, all the patients were to receive hospital treatment. Further, with the comparatively small staff at the hospital it was necessary to provide for a proportionately greater relief strength than at a large asylum, to allow for leave and for illness. These considerations had involved a relatively large expense for staff accommodation, which made the cost of a bed appear disproportionately great. It had also to be remembered that irreducible expenditure for the accommodation of a medical superintendent, medical officers, matron, and other chief officers, which in a large asylum was spread over 2,000 patients, was here spread over 108 only.

Family Histories of Mentally Defective Persons.

The discussions in Parliament of the Mental Deficiency Bill having drawn attention to the great importance of heredity in relation to mental defect, and to the lack of reliable scientific evidence in regard to the inheritance of feeble-mindedness, the Special Schools Subcommittee reported to the Education Committee of the London County Council, on December 11th, that it had decided to obtain particulars of a number of family histories in order to obtain data bearing on the question. If the inquiry was to be of substantial value, it should be fairly comprehensive, and it would be necessary not only that the family histories of at least fifty mentally defective persons should be examined, but also the family histories of fifty normal children, with a view to ascertaining the extent to which the two sets of family histories presented different problems. In connexion with similar inquiries into the family histories of insane persons in the London County asylums, a set of questions had been drawn up, and it was proposed to use the same set on this occasion.

Proposed Formation of Panels.

We are informed by the Clerk of the Insurance Committee for the County of London that a letter has been addressed to all medical practitioners practising in the county inviting them to confer with the Insurance Committee, either personally or through some representative committee, as to the nature of the arrangements to be adopted for the medical attendance and treatment of insured persons entitled to medical benefit.

The notice given to the profession, and published on the first page of the SUPPLEMENT for this week, applies, of course, to the circumstances now brought about in London, and no doubt in many other districts. The Council of the British Medical Association points out that, pending the decision of the Special Representative Meeting and the publication of instructions issued under its authority, it is imperative that no negotiations or arrangements of any kind, temporary or otherwise, should be entered into by any Division or Provisional Medical Committee, or by an individual member of the profession, with Local Insurance Committees or otherwise.

WEST YORKSHIRE.

Halifax and District Medical Society.

Address by Sir Berkeley Moynihan.

The third meeting of the 1912-13 session of the Halifax and District Medical Society was held at the Royal Halifax Infirmary on December 3rd. The President of the Society, Dr. T. H. Hunt, occupied the chair, and there was an unusually large attendance. Sir Berkeley Moynihan delivered an address, entitled "Some Remarks on Gall-stone Disease." At the outset he alluded to the experiments on dogs by means of which the causation of gall stones had been demonstrated. A condition of stasis of the bile was necessary. The liver was the one great place where pathological organisms were destroyed and their débris passed out into the bile. Some of these, such as the *Bacillus coli*, pneumococcus, the influenza bacillus, and others, escaped the protective influence of the liver. In the formation of gall stones crystals of cholesterin were deposited around a nucleus of dead organisms, which might be described as the tombstone erected to the evil memory of the dead organisms inside. There were many heresies about gall stones. The most inveterate of all was that which ascribed inactivity to gall stones. Speaking academically, nobody had gall stones without symptoms sufficient to declare their presence. The inaugural symptoms were those of indigestion, flatulence, fullness, a feeling of weight half an hour after meals, acidity, heart-burn, vomiting (which brought a feeling of relief), goose-flesh feeling in the skin, and pain, becoming more acute—due to distension of the gall bladder. These symptoms, it might be urged, were very common; so were gall stones. When the stone began to suffer some change of position then colic ensued. The gall bladder was not a reservoir for the bile, of which 20 oz. was secreted in the twenty-four hours, whereas the normal gall bladder capacity was only 1½ oz. The pain was sudden—inclined to be more on the right side than the left—and was felt distinctly through to the angle of the right scapula. Just as the onset of the pain was sudden, so it disappeared with equal abruptness; the muscular prostration and vomiting caused the symptoms to disappear. If the stone became impacted in the cystic duct, acute gangrenous inflammation might ensue, in which case it was safer to wait than to operate at once. Not 1 per cent. of the cases of acute cholecystitis were in need of urgent operation. The gall bladder had been known to distend to an enormous extent. In a case recorded in Paris it contained 5 gallons of fluid. In ordinary cases of hydrops of the gall bladder 10 or 15 oz. might be found. Occasionally a "natural cure" by means of a gradual withering of the gall bladder occurred, but Nature was a poor physician and a very bad surgeon. In some cases, after lying for a time in the cystic duct, the stone made a cavity for itself. The diagnostic symptom here was that a large number of very mild attacks followed each other in quick succession, a small stone being present in a duct of comparatively large size. Out of a large number of such cases which he had observed, 25 per cent. had not had at any time any

jaundice. He believed there was no medical treatment for the condition. Nobody had any right to believe that a gall stone could be absorbed after formation. They could not be dissolved. Patients were said to be cured at such places as Carlsbad and Vichy. They were said to have undergone repeated "cures" at such spas, but it was not so. A certain quiet might be produced, but all the time insidious morbid changes were going on. Experience was the name we gave to our mistakes, and he had found even malignant disease in cases which had undergone "cures." He regarded the medical treatment of gall stones as mere bluff. It was a case of keeping the growl quiet, but the dog was there all the time. Long ago it was definitely agreed that no one would suggest anything but surgical operation for stone in the bladder. The pathological consequences were just as great in the case of the gall bladder. Moreover, stones could be removed from the gall bladder with at least one quarter of the risk as in the case of the urinary bladder. Symptoms could be recognized early, and by means of early operation the gall bladder could be left to perform its functions—whatever they were. The Continental surgeons still were disposed to delay operation, but, as the mortality showed, their results were not so good. The English method, it was true, meant more operations, but the results were more satisfactory. That method was now adopted by the American surgeons, to whom, in conclusion, Sir Berkeley paid a high tribute. After some questions had been asked by Dr. Leech and Dr. Marshall, Dr. Drury proposed a vote of thanks to Sir Berkeley Moynihan for his most interesting and instructive address. Apart from the intrinsic value of such an address, he remarked, they had all been fascinated by the lucid and fluent style which had commanded the attention of his audience for an hour, without a single note of any kind. Dr. Fry seconded the proposal, which was enthusiastically adopted. Sir Berkeley replied, expressing his pleasure in visiting the society. Referring to his remarks about the American surgeons, he attributed their excellence to their habit of visiting Europe, where they studied minutely the methods adopted. Any useful suggestion was carefully noted, and was often improved upon. No detail, however trifling it might appear, escaped their critical observation and comment.

MANCHESTER AND DISTRICT.

Aged and Disabled Members of Friendly Societies.

It would appear from a letter sent to the Manchester Guardians by Mr. W. Stead, secretary of the Ancient Order of Foresters, that the Foresters and other friendly societies are now regretting the arrangement made between the British Medical Association and the conference of friendly societies, and embodied in Clause 15, 2 (*e*), of the Insurance Act. Under this section, which was agreed to by the Representative Meeting, persons who were members of a friendly society on December 16th, 1911, but who, by reason of being over 65 years of age or through permanent disablement at the date of the commencement of the Act, are not qualified to become insured persons, will be entitled to obtain medical treatment on the same terms as those arranged for insured persons, the money being provided out of the private funds of the societies. When this arrangement was agreed to, the societies were under some apprehension that their aged and disabled members, requiring a great amount of medical attention, would be left on their hands, and though the liability of the societies to provide medical treatment throughout life still remained, that medical men would refuse to undertake their treatment except for greatly increased fees. When, however, the British Medical Association agreed that these persons should be attended on the same terms as the insured, the societies felt themselves relieved of a difficulty, for though previously they had only paid on an average about 4s. a member a year, they were willing to draw on their funds sufficient to make this up to 6s. They now think that as the latest Government grant to the medical profession involves the societies in a greater liability than they expected, the Government ought to provide the excess amount. It is not possible at present to estimate how much this would be, but on the assumption that the aged and disabled persons referred to number about 300,000 throughout the country, and that the societies are responsible for 3s. a member more than they anticipated when they urged the British Medical Association to agree to this section, the excess cost will be between £40,000 and £50,000 a year. This will, of course, lessen each year as the aged and disabled members die off, but for some years to come it will involve a drain on the private funds of the societies which they consider the Government is morally bound to make up to them. But the Order of Foresters does not confine itself to this amount, for its Executive Council is of opinion that the State should make up to the societies the whole of the difference between the amount paid in the past, which averaged 4s., and the 9s. which will have to be expended for medical treatment, including drugs and appliances (and tuberculosis), under the new circumstances.

Cremation.

The report presented to the annual general meeting of members of the Manchester Crematorium, Limited, on October 15th, stated that during the year ended August 31st there had been 147 cremations. That number, it was stated, showed a gratifying increase on those of previous years, and brought the total since the opening of the crematorium in 1892 to 1,689. The report states that "there is no doubt that opinion in favour of cremation is steadily growing among undertakers."

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

Research Defence Society.

The annual general meeting of the Edinburgh Branch of the Research Defence Society was held in St. Cuthbert's Church Hall on December 9th, Sir Alexander Simpson presiding.

The annual report, which was adopted, stated that the Edinburgh branch had made steady progress during the year, and had now 226 members and 116 associates. The public were awaking to a realization of the baseless nature of many antivivisectionist statements and the misleading character of their arguments. The Chairman said that some of the noblest men that ever lived had spent laborious years in making experiments to enable them to find out the causes of disease and the measures by which disease might be cured. Those men had been attacked by a certain group of people who were great lovers of animals. They were all great lovers of animals, but they had an intense desire to do what was best in eradicating the suffering of their fellow-men. Many of the experiments on animals were made for the sake of animals themselves. He referred to experiments made among horses, and said that all the kings' horses of all lands, when put into the balance, did not equal the value of the life of one single child.

Professor Lorrain Smith, referring to infantile paralysis (poliomyelitis), said clinical observation pursued during 135 years had failed to discover the nature of the cause further than to make it probable that it was of an infectious nature. Three years ago it was proved to be infectious by the experimental method, and it was found that when monkeys were inoculated with an extract of the diseased spinal cord they became paralysed and the form of the disease was the same as that seen in the children. At the present time nearly all the countries in the world had suffered from the disease in epidemic form, and the hope of dealing with it lay with the experimental method by which the cause had been discovered.

Professor Schäfer said cutting operations upon animals were effected without the slightest pain. Often, although it was necessary for animals inoculated by disease to be actually left until the disease proved fatal, animals did not suffer in the same manner as human beings suffered. It was not right that a single human life should be sacrificed for the good of humanity when animals could be used for that purpose.

Treatment of Tuberculosis in Scotland.

At a representative conference of Scottish county and burgh Insurance Committees, representing over 70 per cent. of the total insured persons in Scotland, held in Glasgow on December 2nd, resolutions were adopted

protesting against the proposal of the Government to allocate to the doctors for domiciliary treatment of consumption 6d. out of the 1s. 3d. provided by the National Insurance Act in respect of each insured person for defraying the cost of sanatorium benefit in each year, on the ground that such allocation would seriously affect the administration of the sanatorium benefit. On December 9th the Chancellor of the Exchequer received a deputation which urged upon him the view expressed above, and also pointed out that in Scotland the conditions of insured persons were such as to render them highly unsuitable for domiciliary treatment—that they should receive treatment in a dispensary, hospital, or sanatorium. The Chancellor of the Exchequer replied that he must adhere to the present conditions, and the Insurance Committees must make the 9d. do and rely upon rating authorities to make up half the balance and the Treasury the other half.

RADIUM SUPPLIES.

Some weeks ago Dr. Dawson Turner directed the attention of the Board of Management of the Royal Edinburgh Infirmary to the increased use of radium for therapeutic purposes and the desirability of adding to the quantity at his disposal in his work for the institution. The question was remitted to the Medical Managers' Committee, which submitted its report to a meeting of the general board on December 2nd. The report estimated the cost of meeting the request at £1,000, and stated that, though the committee recognized that radium was now being utilized in a much extended degree in the treatment of certain diseases, it did not feel justified in present circumstances in advising the expenditure of such a sum. Possibly if the general public were made aware of the desirability of more radium being provided, some one would come forward and generously enable the managers to meet the application received from Dr. Turner. In moving the adoption of the report, Dr. Playfair said that, though the medical managers believed that radium had a great future before it, and were impressed with the need of a larger supply, they did not feel justified in recommending any other course than that indicated. After some discussion, and the proposal and withdrawal of two amendments, the report was adopted.

CREMATION IN GLASGOW.

At the annual meeting of the Scottish Burial Reform and Cremation Society, Limited, held at Glasgow on November 26th, it was reported that during the year ended September 30th 44 cremations had been carried out as compared with 35 in the previous year, and 26 in 1909–10, making a total since the opening of the crematorium of 420. The following passage is interesting: "The directors note with particular satisfaction the beginnings of what they are convinced marks a great forward step in the adoption of cremation. A special crypt for the reception of urns has just been erected in St. Columba's, the leading Presbyterian church in London, and previous cremation is being insisted upon in many cases of interments in Westminster Abbey and St. Paul's Cathedral. . . . The cremated ashes of the late Bishop of Truro have been deposited in Truro Cathedral."

THE third International Congress of Neurology and Psychiatry will be held at Ghent in 1913. The proceedings will begin on August 13th. The congress is under the patronage of the Ministers of Justice and of the Interior; it is organized by the Belgian Societies of Neurology and Psychological Medicine. The congress will be held while the International Exposition is open at Ghent. All communications relative to the congress should be addressed to Dr. Crocq, 62, rue Joseph II, Brussels.

THE Talbot Company, which has not taken part in speed competitions at Brooklands for some five years past, has recently brought out a booklet relating to the performances there of one of its cars on November 16th. It was one of the firm's ordinary four-cylinder cars, but despite its low nominal horse power—25—exceeded a speed of 113 miles an hour, a higher speed than had previously been obtained by any but the very largest racing machines. Copies of the booklet can be obtained by sending a postcard to Messrs. Clement Talbot, Limited, Barlby Road, London, W.

Special Correspondence.

PARIS.

Physical Education in France.—The Support of Working Women during the Puerperium.—New Researches on the Lipoids of the System.

A FEW years ago outdoor sports were practised in France only by a few enthusiasts who were looked upon as cranks, and in the schools physical exercises were practically unknown. It is interesting to note how French public opinion has altered in this respect, largely owing to British example and influence. A sign of the new times is to be found in the recent simultaneous announcement of an International Congress of Physical Education, to be held in Paris next March, of the formation of a Eugenics Society, of the foundation of a College for Athletes near Paris, and of the appointment by the Minister of Public Education of a committee to inquire into the best means of introducing into the public schools systematic teaching of physical exercises and the regular practice of outdoor sports. This committee numbers 36 members only—a very small number in comparison with the 400 of the recently appointed Committee on Depopulation. It is constituted chiefly of competent physical instructors and sportsmen, but includes two medical men. As to the Eugenics Society, its promoters are to be found among the Frenchmen who attended the last London Congress on Eugenics, which has opened their eyes to the possibility and the necessity of improving the physique of the race. In connexion with the Congress of Physical Education an exhibition is being organized which should afford many an interesting object lesson. A section will be devoted to miscellaneous documents on physical exercises: tracings, photographs, and apparatus for gauging the physical resistance of subjects in order to graduate the exercises according to their strength and development. Next to this purely scientific section will be found an industrial exhibition, wherein will be shown the more recent improvements in the industries connected with every outdoor sport, from fishing to aviation. An artistic touch will be given to the exhibition by the display of some of the most remarkable works of art (paintings, sculptures, engravings, etc.), illustrating the life of the athlete and of the sportsman.

The Senate has just passed a bill for the protection and support of women of the artisan class during confinement and the puerperal state. From the moment she takes to her bed each woman will receive a daily allowance, to be settled by the Minister of Finance. Her employers will not be allowed to let her go back to work till four weeks after the confinement, nor will they have the right to dismiss her on this score. On the other hand, the woman will not be allowed to do any work, apart from the discharge of simple domestic duties, under penalties of forfeiting her allowance. If the woman be received in a hospital, her allowance will be cut down to half the normal amount. If she remain at home, she will be under the supervision of a medical inspector, who will satisfy himself that she is implicitly following the directions laid down by the Bureau d'Assistance for herself and her child. This bill has been presented and ably defended by M. Strauss, well known for his active interest in public health, and a member of the Academy of Medicine, although not a medical man.

At a meeting of the Academy of Sciences, on November 24th, M. Iscovesco gave an interesting account of his researches on the lipoids of the body. He has found that in every organ, along with numerous lipoids physiologically indifferent, exists one lipoid that exercises a marked stimulating action on the corresponding organ when inoculated into an animal. This "homo-stimuline" produces not only increased functional activity of the organ, but also a very considerable hypertrophy of the same. In some cases these lipoids stimulate at the same time other structures ("hetero-stimulines"). The lipoids of the ovary and testicle, for instance, belong to the first group; the lipoid of the thyroid to the second group. Injections of ovarian lipoid produce after a time considerable hypertrophy of the uterus and ovaries. This stimulating effect has been utilized by Iscovesco in 35 women suffering from ovarian inadequacy (amenorrhœa,

climacteric disturbances, etc.). The results in each case have been remarkable. As distinct from the ovarian lipoid Iscovesco has isolated a lipoid from the corpus luteum which appears to have a marked stimulating action on uterine involution after labour, and has also given very satisfactory results in vomiting of pregnancy. The lipoid extracted from the testicle stimulates the male genital system generally, and has been used with success in men suffering from neurasthenia, sexual impotence, senility, etc. In the red blood cells is to be found a lipoid which has a very decided stimulating action on the blood-forming organs, leading to an increase not only in the number of erythrocytes, but also in the percentage of haemoglobin. The lipoid isolated from the thyroid gland stimulates not only the thyroid, but also the adrenals, the heart, and the genital system. Iscovesco has also extracted a specific lipoid from the hypophysis, the adrenals, and the kidneys. His work forms an interesting addition to present knowledge of internal secretions, and may lead to important practical results.

VIENNA.

Action of the Austrian Government with regard to the Cholera Epidemic in the Balkans.—Abuse of Out-patient Departments.—Conflict between the Profession and the "Krankenkassen."

THE outbreak of cholera in the Balkans has given rise to considerable anxiety throughout Europe, but nowhere is it more keenly felt than in Austria-Hungary, where the business relations now interrupted by the war will be resumed directly hostilities cease, and must necessarily expose the whole country to infection. The deplorable lack of sanitation and complete disregard of prophylactic measures in the affected districts, combined with the decreased vitality of the population after an exhausting campaign, have caused the Austrian Board of Health to impose a strict quarantine on all travellers arriving from the Balkan States and Asia Minor, especially those who have come by sea. A special Cholera Committee, composed of the head of the Vienna Serum-therapeutic Institute, the well-known Professor Kraus, and four of his assistants, and the pathologist, Dr. Kannitz, Professor Weichselbaum's assistant, has been sent to Sofia for the purpose of investigating the epidemic at close quarters; and as plague and typhoid are also rife it has been provided with large quantities of Haffkine's serum. It has been ascertained through the Austrian diplomatic agents in the Turkish provinces of Asia that cholera has broken out in Syria and Aleppo, whilst the yearly pilgrimages to Mecca have imported both cholera and plague from India and China, and both diseases are raging fiercely in Persia and the deserts of the Kirghiz Steppe. It should be added that the Turkish Government has become so much alarmed that a formal application has been made to Vienna for medical volunteers whose sole duty will be to check the spread of cholera in the Turkish army.

There has always been a certain amount of friction between the administrative boards of our various dispensaries and out-patient departments on the one hand and the general medical practitioners on the other concerning the admission of patients to these institutions; and the grievances of the latter body have recently been embodied in a resolution passed by the Vienna Medical Council (*Aerztekammer*), and presented in the form of a petition to the State officials who control the public charitable institutions of this country. The discontent of the doctors arises chiefly from the fact that the dispensaries are at present frequently visited by persons who are well able to pay for medical advice, but who prefer to receive it at these places free of charge. The profession naturally desires to see such persons excluded from the benefits intended only for the poor, and it also wishes to see the members of a *Krankenkassa* (or State sick club) prevented from obtaining gratuitous medical assistance in a similar manner. The sick clubs are bound by law to provide their members with medicine and attendance, and only in the case of an operation is the patient entitled to hospital assistance. By sending one of their members to a dispensary the sick club evades its duty, and wrongs both the profession and the public. Should the club doctors be too few in number or the services of a specialist be required (the dispensaries have usually nothing but special departments), it is the duty of the club to provide whatever assistance may be required. The grievances of the doctors are only too well founded, and it is to be hoped that the authorities will find some means to redress them.

At the present moment the profession is busily engaged in readjusting the strained relations existing between its members and the *Krankenkassen* throughout the whole province of Lower Austria. Some little time back, by means of uniting all the sick clubs into one big corporation, the managing boards of these institutions took the profession completely by surprise, and actually drew up a new plan of medical service without going through the formality of asking the doctors they had appointed if the latter consented to work under the new terms. These terms, as a matter of fact, were considerably worse than the old ones from the doctors' point of view; and the natural result was an outburst of indignation, followed by the resignation of every doctor and a boycott of their vacated posts. There are at present, therefore, about 120 posts vacant in Lower Austria, and up to the present no blacklegs have been found who are willing to take them. Moreover, the financial situation of the clubs is becoming serious, since they are bound to pay each member's doctor's bills; and as their members are now charged the usual fees, the clubs find the present régime considerably more expensive than the former. There is every reason to believe, however, that a compromise will soon be effected and the interests of the profession safeguarded in such a fashion as to render a similar breaking of contract impossible in the future.

Correspondence.

RE-EDUCATION OF THE ATTENTIVE CONTROL.

SIR,—I read with considerable interest Dr. Crichton Miller's paper on the re-education of the attentive control, and also Dr. Bramwell's commentary upon it which appeared in the JOURNAL of November 30th.

I do not know what measure of success Dr. Miller has had in the methods which he advocates, but they hardly commend themselves to me either from the theoretical standpoint or the point of view of practical therapeutics. Given a subject deficient in the power of attentive control, it would seem advisable, at the commencement at any rate, to go on the lines of least resistance. However chaotic and inco-ordinate an individual may be in his power of selection of ideas and plan of action, there is presumably some one subject or another in which he is genuinely interested, provided only he can rise above the obsessing and entangling ideas which have so far morbidly predominated. If such a one can be interested in any pursuit which has a laudable and rational object in view, an object which commends itself to the patient as distinctly worthy of attainment for its own sake, it is manifestly immeasurably superior to any artificial procedure which carries none of these advantages.

The most damning indictment of such methods, however ingenious in elaboration and application, is that they tend to "fix" and keep before the patient's mental vision the very defect which it is proposed to eradicate. Even if it be contended that such mental exercises as Dr. Miller enumerates owe their peculiar value to the fact that they are difficult, that they involve considerable effort, and, if one may say so, successfully eliminate every element of pleasure and interest, that would hardly excuse them. However salutary it may be "to do something every day which we would rather not do," it must not be forgotten that this is not an end in itself, the real object being attained only when the "present disagreeable" becomes a "future delight." After all, the element of "interest" must eventually enter in, and the irksomeness of the task (which is purely relative and derives simply and solely from the patient's morbid point of view) disappears when once this attitude is rectified. We may hold what views we please as to the relationship of "attention" and "interest," but until something in the individual's consciousness is touched—call it imagination, interest, or what you will—until, in fact, he becomes an active and willing participant in the curative process, we are exactly where we were to start with. It follows that such end is best attained by

means of pursuits and occupations which, while involving in themselves abundant opportunities for cultivating concentration of mind (or power of attentive control), are not devoid of that imaginative appeal and purposive significance which can alone secure the intelligent co-operation and intellectual assent of the individual concerned. The cogency of this argument is increased by the fact, which is generally admitted, that the type of sufferer under discussion is oftentimes an individual of high mental endowments and considerable critical faculty, and any method of education which is adopted and which fails to take cognizance of these facts, and to enlist them in its favour, is inevitably doomed to failure.—I am, etc.,

Leeds, Dec. 3rd. J. E. MIDDLEMISS.

SIR,—Dr. Bramwell's criticism of the exercises sketched in my paper on this subject is based on a complete misconception. I allow that I had only indicated and not described fully the type of case for which these exercises are useful, and I must therefore accept the blame for Dr. Bramwell's misapprehension. At the same time I would have expected that those whom my paper interested would have been able to diagnose their cases with sufficient accuracy to avoid misapplication of the exercises. Dr. Bramwell gives an example of "a gentleman suffering from intense melancholia" who was cured by stimulation of new interests. Now melancholia, as such, is not an attentive but an affective malady. To provide new interests for such an one is manifestly the correct treatment, whereas to attempt to redevelop his attentive control would be obviously incorrect. To arouse new interest, to provide new hobbies, to stimulate new enthusiasms, to facilitate distraction, all these things come into the sphere of the psychotherapist, and are of immense importance. But the subject is one I did not happen to be discussing. Interest and effort are the two factors that determine attention. Increase the interest, and the need for effort is less; eliminate interest, and the need for effort reaches the maximum. Dr. Bramwell's melancholic is at one end of the scale; the type I refer to is at the other. They can both attend if they are interested; the former needs interest provided; the latter needs to learn to become independent of interest. In other words, he must acquire the power of enduring an uninteresting task with interest by attending to it. I readily admit that to "take an intelligent interest in the study of mathematics" would be highly profitable to many of the cases I have in mind; but I submit that at the beginning it would be, to the majority of them, as irksome as any task I have described.

As to Dr. Bramwell's point about "mental strain," I can assure him that the patients I have in mind are not the least likely to suffer from it. By the time that any such danger appears the patient is cured.

I shall not trespass on your space further, but I think I have said enough to show that Dr. Bramwell's strictures are founded on an entire misconception of the nature of such cases as would benefit from re-education of attentive control.—I am, etc.,

London, W., Dec. 2. H. CRICHTON MILLER.

ANTIVIVISECTION IN GLASGOW.

SIR,—I read Dr. Hadwen's letter in the BRITISH MEDICAL JOURNAL of December 7th with the most intense surprise. He says:

> I think every antivivisectionist knows that Sir Frederick Treves upholds vivisection, and I invariably announce that fact as I did in Glasgow.

I was present at the lecture with my senior assistant, Dr. H. E. Whittingham. We listened with great attention the whole time. Dr. Hadwen stated that experiments upon living animals had been proved useless. In support of this he quoted Ferguson, Lawson Tait, and Sir F. Treves, making the quotation of which Sir Frederick complained in his letter published on November 30th, p. 1578. He did not say that Ferguson died at a date which made his opinion on the particular points dealt with of little or no value; he did not point out that the opinion of a practising surgeon upon purely scientific questions was of little value unless supported by something beyond skill in operating; and he certainly did not audibly state that Sir Frederick upholds vivisection. If he did say anything implying this he did so in such a manner that the bulk of the audience could not have heard it, for both Dr. Whittingham and I were fairly close to the platform. He undoubtedly implied that Sir Frederick's opinion was directly opposed to experiments upon living animals. I have met many people since Dr. Hadwen's visit here who have expressed surprise that Sir Frederick was an antivivisectionist. Upon inquiry I have found that they had received this impression from the publications of Dr. Hadwen's and other antivivisection societies.

Dr. Hadwen says:

> It is my method, on the platform, to supply facts and not opinions.

A great part of his lecture here was devoted to abusing Sir George Beatson, with regard to whom he made many misstatements of fact. Another part was devoted to the immorality of drinking alcohol and the uselessness and danger of vaccination. With regard to experiments upon living animals, he stated that these were useless, which is not a fact but his opinion. He stated that no diseases were due to specific micro-organisms, which again is not a fact but his opinion. The only fact I heard him mention in the whole of his lecture was with regard to the size of micro-organisms. As these vary much in size, that which he gave is true of some of them, but not of the majority. He made this statement in order to lead his audience to believe his further statement that it was impossible to isolate such minute bodies.

At the end of the lecture I said that as Dr. Hadwen did not believe that any specific micro-organism could produce specific results, and that it was impossible to isolate any particular variety, I took it that he would not believe that I could foretell what would follow upon inoculation with a particular culture. He said he did not believe that I could do so. I then offered to give the chairman a sealed envelope containing a prognosis of what would happen if Dr. Hadwen allowed me to inoculate him. This he declined on the grounds that I could not inoculate him with the micro-organisms without their environment. With some difficulty I got him to admit that the culture medium was what he meant by the environment. I pointed out that this could be got rid of by using a centrifuge. Dr. Hadwen wanted to know what a centrifuge was, but there was hardly time nor was the moment opportune for a description of the apparatus or an explanation of the methods of using it and how easy it is to wash things even smaller than most pathogenic micro-organisms. I offered to inoculate myself in the same way as I proposed using with regard to Dr. Hadwen, and to pay his expenses from Gloucester, including a stay in a nursing home if necessary, with the sole condition that I was to use antiseptic precautions, in which Dr. Hadwen said he did not believe. Dr. Hadwen still refused on the grounds that my proposed experiment was not scientific. If it is not, then no experiments, chemical, physical, or biological, are scientific. It is unscientific to use blue litmus to find out whether a fluid is acid.

Dr. Hadwen tried, with what object I do not know, to make me say that I proposed to inoculate him with anthrax. I pointed out that I would only disclose the proposed micro-organism in the sealed envelope to be given to the chairman. I may say now that the inoculation would not have produced dangerous effects. He would, however, not have been able to conceal them from his admirers. The offer is still open. I should, however, if you would allow me, in case Dr. Hadwen accepts my invitation, propose to place the sealed envelope in your hands. I am prepared to place in it, besides the prognosis, a photomicrograph of the organism used, and to guarantee that I am able to recover the same organism from Dr. Hadwen's body when the symptoms develop. All this must be quite impossible unless specific micro-organisms produce specific results and unless it is possible to isolate specific micro-organisms.—I am, etc.,

Glasgow, Dec. 7th. CHARLES WALKER.

THE ROYAL COMMISSION ON VIVISECTION AND THE HOME OFFICE.

SIR,—In an article in the current number of your paper you express the opinion that the comment on my charges against the Home Office in my evidence before the recent Royal Commission is "crushing."

No doubt you mean that it is I who am crushed; but, as a matter of fact, many of my accusations have received the best possible endorsement the Royal Commission could make, for they recommend that several of the abuses of which I complained should be terminated.

No doubt they sugared the "crushing" which they administered to the Home Office with this delightful emolient:

> "We are of opinion that, on the whole, the working of the Act has been performed with a desire faithfully to carry out the objects which its framers had in view."

Here they only credit them with a "desire" which their recommendations indicate were not, in their opinion, "carried out."

It must be remembered that Sir Mackenzie Chalmers, the permanent head of the staff of the Home Office, was one of the Commissioners, and having condemned many of the methods of his office in their recommendations, the situation called for the administration by them of some harmless anodyne to his feelings, to which I am sure we make him very welcome.—I am, etc.,

London, W., Dec. 10th. STEPHEN COLERIDGE.

*** We should have thought that Mr. Coleridge needed a "harmless anodyne" more than Sir Mackenzie Chalmers. Even his ingenuity in distorting the plain meaning of words cannot extract an anodyne to his feelings from the Report. We need say nothing more on that subject. But there is a matter as to which we should be glad of some enlightenment. What is the process of "sugaring" a "crushing" with an "emolient"? (the spelling is that of our learned correspondent). Mr. Coleridge is a critic of style; we presume, therefore, this nice derangement of epitaphs has a meaning not apparent on the surface.

DIET, DISEASE, AND HEALTH.

SIR,—The JOURNAL of November 30th contains some letters and articles which call for the candid criticism of those who can read between the lines, that the truth may be established and error abolished. Thus W. Bramwell, in his letter, tells of a case of intense melancholia being cured by his doctor taking him for a country ramble, and getting him interested in the structure of plants, the habits of insects, and geology. His success delighted and astonished the doctor, who no doubt attributed it, as Dr. Bramwell evidently does, to the mental influence of the lessons he received during the ramble; but they are wrong. Without the exercise, the lessons would have been useless; and if exercise can cure a suicidal melancholiac, as it did in that case, it will cure any curable disease, without any adjuvant. The one prescription by which Dr. Jephson, of Leamington, cured every disease was "walking," as was set forth in the JOURNAL, in some excellent verses, last year. By making lunatics work, the percentage of recoveries has been wonderfully improved, and, combined with proper diet, our asylums might soon be emptied.

Charles G. Jarvis's letter emphasizes the importance of the retention of sodium chloride and urea, both of which exercise will eliminate, and remove the symptoms to which such retention gives rise.

Had the writer of the leading article on "The Hygiene of the Brain Worker" been aware of the value of exercise, he would not have said that "All sorts of diseases—neurasthenia, melancholia, disordered nutrition, convulsive disorders—result from want of sleep." Far from that being true, too much sleep is worse than too little, for it is during sleep that secondary digestion takes place, which poisons the system by waste products.

Who the writer of that article may be I do not know, but I have little doubt it was he who gave us the excellent articles on ancient medicine, from the fact that he knows about Sanctorius, the value of whose work he seems to overlook, or even laugh at, for he calls him "An old physician, who spent a large portion of his existence in weighing himself in a balance." Had the facts which Sanctorius discovered by weighing himself 300 years ago been fully appreciated, the value of Dr. Jephson's prescription would have been understood, and walking would have taken the place of the drugs, which we owe to the alchemists. Sanctorius proved that the insensible perspiration which exercise promotes is of far more importance than the excretion from the bowels and the kidneys, and must be known before any disease can be properly treated. Some years ago, when I discovered that on giving up all animal food I lost stiffness and other symptoms which are generally attributed to advancing years, I began to study the physiological action of food. To do so satisfactorily I wished to know what weight I lost by skin and lungs, as well as by the bowels and kidneys, but how to get at that puzzled me. At last I thought that if I weighed myself as I got into bed and out of it, and deducted the weight of urine I had passed from my total loss of weight, I would know what I had lost by the skin and lungs. The observations and experiments I made gave me altogether different views of disease from those of my teachers, and I formed what I believe to be a new theory of disease, which I determined to publish; but that I might be sure it was new before doing so, I read through the history of medicine, and in doing so I learnt that Sanctorius had weighed himself just as I had been doing, and I was delighted to find that he also had found that he sometimes actually gained weight in the night, without anything having entered the body except by the skin or lungs from the atmosphere. I applied to Professor Schäfer, who seems to believe man will some day assume the rôle of the Creator, for an explanation of that simple fact; but he was not aware of it, would not believe it, and blamed my steelyard. I got the same steelyard he used, made by the same man, and got the same result with it; but having learnt that no steelyard could be relied upon for perfect accuracy, I had a balance hung up to my bedroom ceiling. I got the same result with it, and it was after I had had all that trouble and expense that I learnt that I had been anticipated by Sanctorius in spending a large portion of my existence in weighing myself. I did not, however, regret that I was so late in learning what Sanctorius had done and thought. He thought it was from the moisture in the atmosphere that he had gained weight in the night. That was my first idea also, and I put the dry and wet bulb thermometer by my bed and compared my loss of weight with the moisture of the atmosphere in my bedroom, but I could see no relation between the two, and, determined to find the true explanation, I began to read about hibernating animals. To my astonishment, I learnt that some were heavier after their winter's sleep than when they lay down, and the explanation given was that the oxygen of the atmosphere, by combining with the waste products of the vital functions, had formed fat. Whether that may be the true explanation or not I do not pretend to say, but it does not seem to me quite satisfactory, and if any member can offer any other explanation they will help to solve a problem of the greatest importance to the rational physician.—I am, etc.,

Hawick, Dec. 2nd. JOHN HADDON, M.D.

ARTERIAL HYPERTENSION AND VASO-DILATORS.

SIR,—Recent contributions on the subject of arterial hypertension make it plain that its presence is no proof of the existence of cardio-vascular sclerosis any more than its absence is evidence of the possession of healthy blood vessels. When present, chronic hypertension is, one may say, physiological in that it is the outcome of an endeavour on Nature's part to carry on the circulation in the face of mechanical disadvantages, caused by thickened arteries, renal sclerosis, or what not.

In view of these circumstances one is tempted to ask whether vaso-dilating drugs can ever be of service, seeing that they can exert no efficient action on the faulty mechanical conditions, and that in any case their influence is so fugitive. To lower the pressure by such means must be about as useful as holding back the hands of a clock that is going too fast. By so doing we may, it is true, make it mark the correct time for a brief period, but if the regulator cannot be got at, the clock begins to gain from the moment we release the hands.

The only possible service that vaso-dilators can render is, conceivably, in cases of chronic hypertension complicated by angio-spasm in the forms so clearly portrayed by Sir William Osler in his lucid address on high blood pressure (page 1173), and in cardio-spasm manifested by the pains of angina pectoris. Even so, unless the patient

be ordered physiological rest in a degree commensurate with the severity of the arterial condition, in addition to diet and intestinal antisepsis in order to check the production and absorption of vaso-irritant toxins from the intestine, the attacks of arterial spasm or other high pressure mischief are sure to recur.

I may mention that I recently had under observation a gentleman, 58 years of age, with a pressure of 220 mm., apparently independent of renal sclerosis, who suffers from occasional attacks of right-sided hemiparesis with difficulty of thinking and speaking. So far these attacks have cleared up completely after a few hours. They are precipitated by a cold wind, a hot bath, or an attack of indigestion, and in the one attack I have actually witnessed yielded promptly to the nitrites.—I am, etc.,

Algiers, Dec. 6th. ALFRED S. GUBB, M.D.

OPERATIONS FOR GLAUCOMA.

SIR,—In the penultimate paragraph of his first letter (BRITISH MEDICAL JOURNAL, June 22nd, 1912) Dr. Fergus made three definite statements about my movements, supporting each with a date. In my reply (BRITISH MEDICAL JOURNAL, August 31st, 1912) I showed that every one of those statements was incorrect. On the basis of those three incorrect statements Dr. Fergus built the assertion: "These being the facts, it would appear that I used this operation nearly a year before Colonel Elliot did." In my reply (above referred to) I pointed out that Dr. Fergus first trephined on January 5th, 1909, and I on August 2nd, 1909, the interval being obviously just short of seven months, and not "nearly a year." Dr. Fergus in his latest letter (BRITISH MEDICAL JOURNAL, September 14th, 1912) modifies his position, and states that "Major Elliot's first communication . . . was in December, 1909, or nearly a year after I had done my first simple trephining operations." It appears to me unusual to reckon a period from one surgeon's date of first operation to another's date of publication. Would it not be more in accordance with scientific method to compare our dates either of first trephining or of publication? I am, moreover, at a loss to understand why Dr. Fergus should have introduced the question of the different meanings in which we used the word "home"; I submit that it has not the least bearing on the point at issue. Our statements are perfectly clear, and no confusion whatever has been introduced by the fact that we both use this word in different but fully recognized senses. In any case it boots little to argue about precedence when three other surgeons have been years in the field before us. I merely record these facts before passing on to my main point, as Dr. Fergus's method of conducting the controversy appears to me to be calculated, unintentionally no doubt, to hide the really important question at issue.

Dr. Fergus says that he still trephines, and only adopts the combination of trephining and cyclodialysis for certain cases. I should not venture to deny this. It is, however, a very different attitude from that which he took up when he spoke of "simple trephining" as "the operation which he had introduced into ophthalmic practice in the autumn of 1909." It is on that claim that I most unhesitatingly joined issue with him, on a question of facts. I have clearly shown out of Dr. Fergus's own writings that he definitely turned his back on "simple trephining" within three months of the date on which he first began to trephine, and that he insisted on every occasion on which he uttered any public statement on the subject that his operation was a *combination of trephining with cyclodialysis*. I have also shown that this was the view taken of the matter by such competent observers as Treacher Collins and Sydney Stephenson. If one thing more were needed to show that Dr. Fergus's actions justified such an interpretation being put on them by the profession at large, surely no better proof can be adduced than the evidence of his own colleague who works side by side with him in (if I mistake not) the same hospital in Glasgow. Dr. Ballantyne wrote (*Ophthalmoscope*, July, 1910), "but cyclodialysis has again appeared as an *integral part* of Fergus's sclerectomy with the trephine," and again, "but Fergus soon introduced a modification which now forms an *essential part* of his operation—namely, the passage of an iris repositor from the trephine hole into the anterior chamber, keeping it in close contact with the sclera and cornea." The italics are my own. Dr. Fergus's written and spoken words may do his practice an injustice but they pin him to the combined operation, whilst his actions have apparently conveyed the same impression to those who work alongside of him. If he is not to be judged by these, what possible basis for argument can we find?

Dr. Fergus says that I have not accepted his word that he does not see the *Ophthalmoscope*. I regret that any words of mine should, with no intention on my part, have conveyed such an impression to him. Dr. Fergus wrote (BRITISH MEDICAL JOURNAL, June 22nd, 1912) of what he claimed as my admission of his priority in the use of the trephine, and as I cannot find that I have ever discussed that question outside of India except in the pages of the *Ophthalmoscope*, I naturally concluded that he had read the article in question. Dr. Fergus had also launched a somewhat unusual attack on me in the *Ophthalmoscope* for February, 1910, in reply to an article I had published in the pages of that paper (December, 1909), and it was only reasonable to expect that he would have looked out for a reply. He says he did not, and that settles the question so far as I am concerned. How he obtained the information that he used in his later letter is not apparent; it may have been from hearsay, or in some other way unknown to me. I personally should have taken care to see the written words first, before I built a case on them, and I credited Dr. Fergus with doing the same. In any case I desire to most unreservedly withdraw anything in my letter which may have unintentionally hurt Dr. Fergus's feelings by appearing to have been meant as a doubt of his word or as a slight on his personal honour. Though Dr. Fergus's methods of controversy may be such as I find it difficult to understand, I take the sanctity of his word for granted.—I am, etc.,

R. H. ELLIOT, M.D.,
Madras, Oct. 15th. Lieut.-Col. I.M.S.

ASSISTANT MEDICAL OFFICERS IN ASYLUMS.

SIR,—As an assistant medical officer of some years' standing, I have read the letters in your last two issues with considerable interest. Letters have appeared in the medical journals from time to time during the past ten years dealing with the grievances and general conditions of work of assistant medical officers in asylums. Recently the question of the status of the asylum assistant has been made the subject of inquiry by a special committee of the Medico-Psychological Association, and this committee is at present engaged in investigating the grievances of assistant medical officers. Some of these are undoubtedly real, others have exaggerated or fictitious importance attached to them. But there is an idea gaining ground, possibly as a result of the various letters published, that the asylum assistants are seething with discontent. In my opinion it is not the case that they are becoming disloyal because of their dissatisfaction, which previous letters seem to show. Unfortunately in these days, whenever any body of persons feel that their position or conditions of work are uncongenial the remedy at once suggested is to form a union, and they imagine that the trouble will be at once rectified. I doubt greatly whether much or even any benefit would accrue by the formation of a union or society of assistant medical officers. We assistants, the seniors at least, are specialists, and it ill becomes us to lower ourselves to the level of the illiterate worker. A society of assistants formed chiefly for and with the avowed object of airing grievances, would rapidly breed discontent and disloyalty in our ranks; the superintendents and committees would automatically and unconsciously take up an attitude of antagonism to any such union, and in consequence of these facts the interests of assistants would suffer greatly. To my mind assistant medical officers should attack the grievances under which they believe themselves to labour in a much more dignified manner.

I understand that the conditions described by "Assistant Medical Officer" in the JOURNAL of November 30th are among those at present under consideration for remedy by the special committee of the Medico-Psychological Association, but if they were stated fairly and squarely to the medical superintendents and asylum committees it is more than probable that a ready sympathy would be extended,

and there would be little need to cause an upheaval in the asylum service by the formation of yet another union.

The assistants in each asylum should take their troubles to their superintendent, telling him exactly what they wish, and I have little doubt but that he and the asylum committee would readily adjust matters favourably to the assistants. Should this trial fail, however, and the grievances not be remedied, it is in the power of each assistant to send a statement of his facts to the special committee of the Medico-Psychological Association, and he would find that the matter had come before a sympathetic body of men.—I am, etc.,

Stirling District Asylum, Larbert, Dec. 9th. C. H. G. GOSTWYCK.

SIR,—The letter of "Assistant Medical Officer" in the JOURNAL of November 30th, p. 1582, shows that reforms dealing with the conditions of service of asylum physicians are long overdue. Say a man qualifies at the age of 25. He then takes up junior hospital appointments or other active professional work in order to gain experience and assurance. After a few years he decides to take up lunacy. At 28 or thereabouts he is appointed junior medical officer in an asylum at a salary which usually begins at £150 per annum, living in. In about five years' time, when he is 33 years of age, he is perhaps getting his maximum of £300 or thereabouts, and still living in. From now till 40 he is in a continually anxious state of mind with regard to further promotion. Vacancies for the post of superintendent are few and far between, and are largely a matter of luck. Supposing he has not the good fortune to get one of these appointments at 40, he finds himself still earning what he did at 33, no prospects, and subject to the degradation of not being permitted to make a home for himself. Should he leave the asylum service now, he not only sacrifices his pension but takes up a totally strange line of work, and enters general practice under conditions which are decidedly not conducive to success. Again, his leaving the service is not in the interest of the patients. Obviously it takes a very considerable time to get to know four or five hundred people and their idiosyncrasies. It is also bad in an administrative sense, as it engenders a tendency for head attendants and others to usurp responsibilities which naturally belong to higher officials.

Why is this state of things permitted? One cannot believe that any common-sense and unbiassed man knowing the whole facts would not see injustice written in large capitals.

"Assistant Medical Officer" points out that the doctors in asylums are unable to establish a home, and says, "Why these privileges should be totally denied to the entire medical staff below the superintendent is a mystery." Now is it possible that the committees do not know the entire facts? It must be remembered that an assistant medical officer is expected to communicate through the superintendent with his committee, and as their deliberations are in private, the superintendent's side of the question is liable to be the only one taken cognizance of. Insanity itself is nearly three times more rife amongst the celibate than the married; one cannot believe that any committeeman knowing this fact, together with the many other dangers that asylum medical officers are subjected to, could not but appreciate the necessity of almost compelling asylum physicians to be married men. It is above all things necessary that those in authority in insane asylums should themselves be sane.

Does the superintendent identify himself sufficiently with his professional brethren? Does he look on his colleagues as a class apart, and not consider their dignity, status, etc., as identical with his own?

It is to be hoped that this matter will be taken up by the British Medical Association, and pressure brought to bear on those who are really responsible. Many medical men in the past have had their lives wrecked through the evils attendant on the present state of the asylum service, and reforms are long overdue. In the interests of the patients, is it too much to ask the Lunacy Commissioners to circularize the various local authorities with regard to reforms in the life of the asylums medical officer?—I am, etc.,

November 30th X. A. M. O.

THE ORIGIN OF LIFE.

SIR,—Dr. Marcus Hartog asks whether I have "tried drying and heating" the organisms found in my tubes "to a dull red heat to see if they char," and my reply is in the negative, and that for two reasons. In the first place, the organisms are not taken from "carbon-free silica solutions." As I point out in a special section of my book *The Origin of Life* (Watts and Co., pp. 72–74), CO_2 would be contained in the distilled water and in the air above the solutions, not to speak of the possibility of the silicate of soda being contaminated with the carbonate of soda used in its preparation (see Roscoe and Schorlemmer's *Treatise on Chemistry*, vol. ii, part 1, p. 129).

The paucity of the carbon within the tubes is supposed by me to account for the fact that the organisms found are only met with in such small numbers. This latter fact supplies the second reason why I have never attempted to do what Dr. Hartog suggests. Such a procedure would not have been possible with minute microscopic organisms, in very small groups, in the midst of clouds of deposited silica.

I am concerned more with facts than with explanations, so that, after considering the question, all I could say was this: "Taken together, these facts are certainly very suggestive that silicon has replaced carbon, in part at least, in the formation of the protoplasm entering into the constitution of the organisms found within the experimental tubes." On p. 65 of the same book there is a hint as to how this all-important constituent of the solutions may act in leading to the *de novo* production of living units.—I am, etc.,

The Athenaeum, S.W., Dec. 9th. H. CHARLTON BASTIAN.

NEW DRUGS.

SIR,—In your issue of November 30th Dr. Stephens, of Swansea, casts ridicule on Professor Dixon's statement that no useful drug has been introduced except by a man who has a laboratory, and submits his own case as an example of a general practitioner, without a laboratory, who has introduced two new drugs—namely, calcium iodide and calcium permanganate.

It would be interesting to know what claim Dr. Stephens has to be the introducer of permanganate of lime. My father—Mr. H. Bollmann Condy, of Battersea—introduced in the Fifties a whole series of the permanganates, including the lime compound, which he for years advertised in the medical journals as liquor calcis permanganatis. It was included in his exhibits at the International Exhibition, 1868, was mentioned by Professor Baron A. W. von Hofmann in his report on the products of the Chemical Section, and attracted the attention of Dr. Frankland, Dr. Letheby, Professor von Liebig, Playfair, and many other medical authorities. In 1862, and again in 1867, Mr. H. B. Condy was awarded medals for the introduction of the permanganates, including permanganate of lime, which he was the first to manufacture. These are surely credentials to the title of "introducer."—I am, etc.,

London, W.C., Dec. 6th. H. J. B. CONDY.

SIR,—Had I been aware of the fact that Professor Dixon has established a definite relationship between ionization and therapeutic action I should have known that when he speaks of drugs he means elements.

Quinine nitrate, however, can hardly be described as an inorganic salt, nor does one expect to get ionization in colloidal solutions.—I am, etc.,

Swansea, Dec. 9th. G. ARBOUR STEPHENS.

THE twelfth annual meeting of shareholders of the Birmingham Crematorium, Limited, was held on December 5th. The annual report for the year, which ended on October 31st, was presented. During the period to which it related there were 41 cremations, as against 42 for the preceding year and 37 for the year 1910. The total number of bodies incinerated since the opening of the crematorium in 1903 is 262. During the year lengthy negotiations took place with the Corporation in regard to the possibility of its purchasing the company's business and undertaking, but the Corporation being unwilling to purchase, the negotiations came to nothing.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Degree.

THE following degree has been conferred:

D.M.—W. D. Sturrock.

Examination.

The following candidates have been approved at the examination indicated:

D.P.H.—*Part I:* J. C. Barucha, A. G. Macfarland, L. J. J. Orpen, H. G. T. Truscott Major. *Part II:* R. Donald, A. H. Tebbutt. *Both parts:* W. B. Hill, A. E. Jerman.

UNIVERSITY OF CAMBRIDGE.

Diploma in Psychological Medicine.

REGULATIONS for the examination for the diploma in psychological medicine have been prepared.

The examination will be in two parts. Any person whose name is on the *Medical Register* is admissible to Part I of the examination, which will consist of a paper and a practical and oral examination in the anatomy and physiology of the nervous system, and a paper and practical and oral examination in psychology. A syllabus of the subjects has been drawn up.

Candidates for Part II of the examination must at the time of entry be registered medical practitioners of not less than two years' standing, and must produce evidence of having had twelve months' clinical experience. The special board for medicine has suggested that this clinical experience should have been gained in a registered mental hospital of the United Kingdom, or in an asylum in the United Kingdom, or some other institution or licensed house recognized by the university, but this detail has not yet been formally passed by the Senate. The second part of the examination will consist of a paper, and clinical and oral examination in neurology, a paper in psychiatry, lunacy law, and asylum administration, and a paper giving a choice of subjects for an essay in psychiatry and a clinical and oral examination in that subject.

The examinations for the diploma will be held once in each year. There will be an examination for Part I beginning on June 3rd, 1913, and for Part II beginning on July 1st, 1913. In 1914 and in subsequent years the examinations for Part I will be held in Cambridge during May or June, and for Part II in London during March or April. A candidate who passes both parts of the examination will receive a diploma testifying to his competent knowledge of psychological medicine. Applications for further information should be addressed to Dr. C. S. Myers, the Psychological Laboratory, Cambridge.

The following degrees have been conferred:

M.D.—Alfred Whitmore.
M.B.—R. R. Armstrong.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on November 20th, the Vice-Chancellor (Dr. Herringham) presiding.

Appointments.

Dr. Sandwith was appointed External Examiner in Tropical Medicine for the year 1912-13, to complete the period for which the late Dr. Duncan was originally appointed.

The Vice-Chancellor (Dr. W. P. Herringham), Sir Alfred Pearce Gould, K.C.V.O., and Sir David Ferrier, F.R.S., have been elected chairmen of the Civil Service Committee, the Graham Legacy Committee, and the Physiological Laboratory Committee respectively.

D.Sc. Degrees.

The D.Sc. degree in Bio-chemistry was granted to Dr. Casimir Funk, of the Lister Institute of Preventive Medicine, and in Psychology to the Rev. Dr. F. A. Powell Aveling, of University College.

New Board of Studies.

In view of the increase of the provision for sociological teaching and research now under the control of the university, due mainly to the successive benefactions of Mr. Martin White and the recent endowment made by Mr. Ratan Tata, a new board of studies in sociology has been constituted as from January 1st next.

Examinerships in the Faculty of Medicine.

Notice is given that there are vacancies for one examiner in each of the following subjects: Medicine, Surgery, Forensic Medicine and Hygiene, State Medicine, Anatomy and Physiology, and two vacancies in Pharmacology.

Course in Physical Anthropology.

A course of lectures and practical instruction on physical anthropology will be given in the anatomy departments of University College and King's College by Professor D. Waterston and Dr. D. E. Derry. The course will begin on Tuesday, January 14th, at 4 p.m., at University College, and will comprise the following branches of the subject: Craniоscopy, craniometry, osteometry, anthropometry (on the living subject), estimate of stature, age and sex from bones, comparison with higher mammals (especially Anthropoidea), and race distribution and characteristics. Further particulars may be had on application to the Secretary of King's College or to the Secretary of University College.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examination indicated:

Diploma in Public Health.—D. Adams, J. M. Bennett, *L. Bousfield, Captain, R.A.M.C., J. Burke, W. H. Date, M. Golding, Alice W. Maclean, A. E. S. Martin, A. S. Millard, W. M. Morrison, R. M. Wishart.

*Passed with honours.

Obituary.

WALTER BERNARD, F.R.C.P.I.,

LONDONDERRY.

DR. WALTER BERNARD died suddenly at his residence, Buncrana, near Londonderry, on December 6th. His father was a captain in the old 60th Rifles, and marched with the reinforcements into Brussels on the evening of the battle of Waterloo, but was too late to take part in the memorable action.

Walter Bernard, who was born on May 1st, 1827, at Newmarket, county Cork, became M.R.C.S.Eng. in 1852, a Licentiate of the Royal College of Physicians of Ireland in 1858, and a Fellow of the same college in 1876. He was one of the few remaining members of the medical profession who took part in the Crimean war. He served as a civil surgeon throughout the entire campaign, and attended the wounded on the field of Inkerman. He saw the havoc worked amongst the British troops by small-pox and cholera, and in speaking of the campaign used to say that for every man shot fifty died of disease during the terrible winters of 1854 and 1855. On the voyage home from the Crimea he saved a man's life from drowning, and was presented with the Royal Humane Society's certificate. Dr. Bernard had practised in the north of Ireland for sixty years. For many years he enjoyed a large practice in Londonderry, and held many public appointments. He was a very old member of the Londonderry Branch of the British Medical Association. He leaves a widow. His life was deeply scarred by three great sorrows, the deaths of his three children.

EDWARD ALFRED BIRCH, M.D., F.R.C.P.,

INDIAN MEDICAL SERVICE.

BRIGADE-SURGEON EDWARD ALFRED BIRCH, of the Bengal Medical Service, retired, died in London on November 27th, aged 72. He was born on September 24th, 1840, educated at the City of Dublin Hospital and in the school of the Royal College of Surgeons in Ireland, and took the L.R.C.S.I. in 1861. Later on he acquired many other diplomas, the L.K.Q.C.P. in 1865, the F.R.C.S.I. in 1866, the D.P.H. Cambridge in 1878, the M.D. Brussels in 1879, the M.R.C.P. London in 1886; in 1892 he was elected F.R.C.P. London. Immediately after qualifying, he entered the Royal Navy as Assistant Surgeon in 1861, and served in the China war, being present at the actions of Kagosima and Simonoseki, in Japan. In 1865 he resigned his commission in the navy, and in the following year entered the I.M.S. as Assistant Surgeon on March 31st, 1866. He was promoted to Surgeon on July 1st, 1873, to Surgeon-Major on March 31st, 1878, and to Brigade-Surgeon on April 3rd, 1891; and retired from October 4th, 1893. In India he saw no war service, but spent almost all of his career in civil employment in Bengal, where he served in the Bihar famine in 1874, then for several years as Civil Surgeon of Hazaribagh, and from 1882 to 1889 as Superintendent of the Presidency European General Hospital in Calcutta. In 1889 he went home on furlough. On his return from leave he was appointed Principal of the Medical College, Calcutta, and held that post till he retired, except for a short interval in which he acted as Inspector-General of Civil Hospitals, Bengal.

Birch's name will, however, probably be best remembered as that of the author of a book in everyday use in India, consulted by most civil surgeons in their professional capacity, and by most other officers as parents,

The Management and Treatment of Children in India. This may be called one of the ironies of life, for Birch was not the original author of the book, which is probably the oldest professional work still in constant and regular use. It was written by Surgeon Henry Hurry Goodeve, of the Bengal Medical Service, and published on March 15th, 1844, as a very small volume, privately printed, under the title *Hints for the General Management of Children in India, in the Absence of Professional Advice.* A second edition was called for in less than six months, and issued on September 1st, 1844; a third followed in October, 1852, and a fourth in 1856. Even this fourth edition is a volume of the smallest octavo size and of only 138 pages. The fifth edition was edited by S. C. G. Chuckerbutty; the sixth by Joseph Ewart in 1872. The seventh edition, in 1879, was entirely re-written by Birch, and this was the first with which his name was associated. A second edition was published in 1886, a third in 1895. By this time the book had increased in size to a large octavo volume of 476 pages; little if any of Goodeve's original work remained, and his name had been dropped. A fourth edition followed in 1902, and a fifth edition of Birch, which is the eleventh edition of Goodeve, is now in preparation, edited by Lieutenant-Colonel C. R. M. Green, I.M.S.

HENRY MARTINEAU GREENHOW,

SURGEON-MAJOR (RETD.), BENGAL MEDICAL SERVICE.

Surgeon-Major Henry Martineau Greenhow, of the Bengal Medical Service (retd.), died at Esher, Surrey, on November 26th, aged 83. He was born on September 26th, 1829, and received his medical education at Newcastle and at University College, London, taking the M.R.C.S. in 1853, and subsequently, when on furlough in 1859, the F.R.C.S. of both London and Edinburgh. He entered the Indian Medical Service as Assistant Surgeon on January 20th, 1854, was promoted to Brevet Surgeon, for his services in the Mutiny, from September 7th, 1858, was absorbed in that rank in regular course on January 1st, 1866, became Surgeon-Major on July 1st, 1873, and retired on August 20th, 1876. After his retirement, Dr. Greenhow tried his hand at literature, and was the author of several novels of Anglo-Indian life—*The Bow of Fate, Brenda's Experiment, The Tower of Ghilzan, The Emperor's Design,* and *Leila's Lovers.*

Dr. Greenhow served in the Indian Mutiny, and took part in the memorable defence of the Lucknow Residency. He was mentioned in the dispatch, dated September 26th, 1857, of Brigadier Inglis, commanding the Lucknow garrison; also in the Bengal General Order of December 8th, 1857, and in the *London Gazette* of January 16th, 1858. He received the Mutiny medal with two clasps, furlough for eighteen months counting as service, and, in addition, was credited with one year's extra service for pension as one of the Lucknow garrison.

Dr. Greenhow was the last survivor of the medical officers who took part in the defence of the Residency. The other medical officers mentioned in the dispatch of Brigadier Inglis were Surgeon William Brydon, 71st Native Infantry, the sole survivor of the retreat from Kabul in 1842, who was severely wounded, being shot through the loins while seated at dinner in Mr. Gubbins's house on July 21st, 1857; Surgeon John Campbell, of the 7th Light Cavalry; Surgeon George Mathieson Ogilvie, Sanitary Commissioner; Assistant Surgeon Boyd, 32nd Foot; Assistant Surgeon Joseph Fayrer, Civil Surgeon; Assistant Surgeon Samuel Bowen Partridge, 2nd Oudh Irregular Cavalry; Assistant Surgeon Robert Bird, Bengal Artillery; and Assistant Surgeon Edmund Darby, who died of wounds on October 27th. Surgeon John Bannatyne Macdonald also took part in the defence, and died of cholera in the Residency on August 8th. Boyd was an officer of the Medical Department of the British Army; Ogilvie was a member of the Bombay Service; all the others were Bengal men. Brydon, Campbell, and Ogilvie received the C.B.; Fayrer, Partridge, Greenhow, and Bird were all specially promoted to surgeon by brevet.

We regret to announce the death of Dr. Robert Fletcher, whose name is known to the whole medical world by his association with Dr. J. S. Billings in the compilation of the *Catalogue of the Surgeon-General's Library* at Washington. Fletcher was an Englishman by birth, having been born at Bristol ninety years ago. He received his medical education at the old Bristol Infirmary and the London Hospital, and was admitted M.R.C.S.Eng. in 1844. He then went to America, and took the degree of M.D. at the Columbia University. He served as surgeon in the Civil War, and retired with the rank of Lieutenant-Colonel. He was afterwards promoted to be Colonel in recognition of his services in the war. He took a prominent part in establishing the Army Medical Library at Washington. Besides his work on the *Index Catalogue* of that library he was also with Dr. Billings in the compilation of the *Index Medicus.* When that periodical was revived, under the auspices of the Carnegie Institution of Washington, Fletcher was appointed editor. He was the author of several papers on anthropology and folklore, and his literary interests extended to the old English poets and dramatists. He lectured on medical jurisprudence at Washington, and later at the Johns Hopkins School, Baltimore. In 1910 the Council of the Royal College of Surgeons of England conferred upon him the honorary medal of the College for "distinguished labours eminently conducive to the improvement of natural knowledge in the art of healing." In a letter of appreciation of Dr. Fletcher and his work, quoted in the *Morning Post,* Sir William Osler says: "There were few men in the profession in the United States more widely respected, and those who had the privilege of his friendship knew him as a man in whom were combined in an exceptional way culture and character."

Major-General Robert Maitland O'Reilly, Surgeon-General of the United States Army from September 7th, 1902, to January 14th, 1909, died of uraemia on November 3rd. He was born at Philadelphia in 1845. He was educated in the public schools of his native city, and his medical studies, at the University of Pennsylvania, were interrupted by the outbreak of the Civil War. In August, 1862, he was appointed in the military hospital service as an acting medical cadet, serving in various military hospitals up to the close of the war. Resuming his medical studies, he graduated in 1866. In May, 1867, he was appointed assistant surgeon in the army, with the rank of First Lieutenant, and thereafter his service was continuous and his promotion rapid. He saw a good deal of field service in the expeditions against the hostile Sioux in 1874 and 1890. General O'Reilly was physician to the White House during the two administrations of President Cleveland, of whom he was a warm personal friend. At the outbreak of the Spanish-American war he was appointed Chief Surgeon of the First Independent Division, and in December, 1898, he went to Jamaica to study tropical hygiene in reference to the American occupation of colonial possessions. He was a delegate to the International Conference for the Revision of the Geneva Convention which met at Geneva, Switzerland, in 1906. In 1903 General O'Reilly collaborated with Major C. Borden in a monograph on *Military Surgery,* which was published in the fourth edition of Keen's modern textbook. General O'Reilly was a man of great personal refinement, and he did much to elevate the *personnel* and status of the Army Medical Corps through his tact, his unfailing courtesy, and his charming manners.

Surgeon-General John Edward Moffatt, who died at Upper Rathmines, Dublin, on September 20th, aged 86, had a singular and unusual career—thirty years in the Army and thirty years in the Church. He took the diploma of L.R.C.S.I. in 1850 and subsequently the M.D. of McGill University, Montreal. Entering the Army Medical Department as Assistant Surgeon on March 14th, 1851, more than sixty years ago, he served in the Kafir war of 1851–53, and received the medal therefor. He retired from the army as a Deputy Surgeon-General on September 27th, 1882, with a step of honorary rank. Soon after his retirement in 1882 he was ordained as curate of Maryleborough, Ossory, and subsequently for twenty-six years held the incumbency of Milltown, Dublin. Such a combination of a medical with a clerical career, though certainly uncommon, is not unprecedented. John Leyden, the famous Oriental scholar, had been licensed as a preacher of the Church of Scotland before he thought

of entering the Indian Medical Service, which he did in 1802, after taking the degree of M.D. at St. Andrews, and the diploma of L.R.C.S.Edin., with only six months' study. John Taylor, after taking the M.D. at Edinburgh in 1804, went to Madras as a missionary for the London Missionary Society, was appointed Assistant Surgeon in the Bombay Service in 1808, and confirmed on March 26th, 1809. He died at Shiraz in Persia on December 6th, 1821. Buchan Warren Wright, who entered the Madras Service in 1829, and resigned in 1837, and William French Clay, who joined the Bombay Service in 1848, and resigned ten years later, both spent the rest of their lives as ordained clergymen of the Church of England. And the first medical missionary in India, John Thomas, a colleague of the famous Serampur missionaries, Carey, Marshman, and Ward, first went to India in 1782 as surgeon of the Indiaman, *Earl of Oxford*.

Brigade-Surgeon THOMAS STICK VEALE, late of the Bengal Medical Service, a veteran of the Crimea and of the Mutiny, died at Croydon, on December 1st, aged 81. He was born on March 25th, 1831, received his medical education at University College, London, and took the M.R.C.S. in 1854, the L.S.A. in 1855, and the M.D. of St. Andrews seventeen years later—in 1872. As soon as he had qualified he went to the East, and during the Crimea war in 1854–5 served in the Army Civil Hospital at the Dardanelles. Entering the I.M.S. as Assistant Surgeon on January 27th, 1858, he became Surgeon on January 27th, 1870, and Surgeon-Major on July 1st, 1873, retiring with a step of honorary rank on February 22nd, 1885. His whole service in India was passed in military employ. He served in the Indian Mutiny towards its close, in 1858, and gained the Mutiny medal, on the North-East Frontier of India, in the Bhutan campaign of 1865–66, receiving the Frontier medal, and in the second Afghan war in 1879–80, earning a third medal with clasp.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are: Professor Karl Kopp, head of the Dermatological Policlinic of the University of Munich, aged 57; Dr. J. E. Newcomb, Professor of Laryngology in Cornell University, aged 55; Dr. Seydel, Emeritus Professor of Forensic Medicine in the University of Koenigsberg, aged 74; and Dr. Ernest Tavel, Professor of Bacteriology and afterwards Extraordinary Professor of Surgery in the University of Berne, in his 55th year.

Medical News.

THE dinner of the West African Medical Staff will be held on January 15th at the Walnut Room, Grand Hotel, Charing Cross, at 7.30 p.m.

AT the meeting of the Royal Microscopical Society, at 20, Hanover Square, on Wednesday next, at 8 p.m., Mr. Frederick Enock will give a lantern demonstration on insect intelligence.

MR. A. W. MAYO ROBSON, C.V.O., F.R.C.S., Major, R.A.M.C. (T.F.), has been appointed a Knight of Grace of the Order of St. John of Jerusalem in England, and Dr. W. D. Drydone-Jack and Dr. Thomas Nelson have been appointed Esquires of the same order.

THE report adopted at a meeting of the Council of the Metropolitan Hospital Fund on December 9th showed a total collection for the current year of £67,972, of which £62,401 has been distributed among various institutions. In this the fortieth of the operations of this fund, the sum collected was £957 in excess of that received in the previous year. On the other hand, the total sum collected actually in places of worship was only £35,866, this being nearly £1,200 less than in 1911. Before the meeting concluded a special honorarium of £100 was voted to enable an extended holiday to be taken by Sir Edmund Hay Currie, the Secretary of the fund, who is now 79 years of age, and has shown great devotion to his work.

MR. T. WINGATE TODD, who since 1910 has been Lecturer in Anatomy in the University of Manchester, has been appointed Henry Willson Payne Professor of Anatomy in the Medical Department of the Western Reserve University, Cleveland, Ohio. Mr. Todd, who graduated in 1907 with first-class honours at the final examination for the degrees of M.B. and Ch.B. obtained amongst other distinctions, whilst a student in the university, the Tom Jones Scholarships in Anatomy and in Surgery. After graduation Mr. Todd was appointed Demonstrator in Anatomy, under the late Professor Alfred H. Young. In 1909 he was House-Surgeon at the Manchester Royal Infirmary.

THE Metropolitan Asylums Board has made arrangements for a three months' course of lectures and demonstrations in hospital administration for the benefit of candidates for the diploma in public health. They will be given at the Eastern Hospital, Homerton, by Dr. E. W. Goodall, on Tuesdays and Fridays, beginning January 7th, 1913; at the North-Western Hospital, Hampstead, by Dr. J. MacCombie, on Mondays and Thursdays, beginning Monday, January 6th; and at the Grove Hospital, Tooting, by Dr. J. E. Beggs, on Thursdays and Saturdays, beginning January 4th. The fee for the course is 3 guineas. A prospectus can be obtained from the Clerk to the Metropolitan Asylums Board, Embankment, E.C.; the class can be joined at any time, provided it is completed during the class beginning in April, 1913.

THE Royal Surgical Aid Society celebrated its jubilee last week by a luncheon held at the Cannon Street Hotel (the President, Lord Aberdeen, presiding), and a meeting at the Mansion House, with the Lord Mayor (Sir David Burnett), in the chair. Reference was made during the proceedings to the fact that the King, who is the patron of the society, has granted the use of the prefix "Royal" in its title. Tributes to the useful work of the Surgical Aid Society were paid by the Bishop of London and members of the clergy, and Lord Aberdeen pointed out that a very large proportion of the income of the organization went directly to the alleviation of suffering, working expenses being kept at a low percentage. Sir Frederick Treves, in moving a vote of thanks to Mr. Muirhead Little, Mr. T. H. Openshaw, and Mr. E. Laming Evans, the surgeons of the society, and to the honorary surgeons of branches, said he could testify to the immense value of the provision made by the society in completing the work of the hospitals. A special fund is to be raised in commemoration of the jubilee.

THE annual meeting of the Hospital Almoners' Council took place at Caxton Hall on Friday, December 6th, Sir James Goodhart, Bart. (Vice-President), in the chair. The report draws attention to the fact that the council now numbers among its members many representatives of London and provincial hospitals. During the past year almoners trained by the council have been appointed at two London hospitals, while others have secured posts as assistants. Two candidates are being specially trained for posts in the north of England and nine others are now in training. The chairman, in moving the adoption of the report, drew attention to the work of the council in stimulating a demand, which it is now called upon to supply, and made a reference to the importance of the recommendations of the special committee on out-patients of King Edward's Hospital Fund for London as they affect the future of the movement. Particular attention was drawn by various speakers as to the necessity of definite training and to the danger of the appointment of persons unable to benefit by the experience of their predecessors. The need for this training had been realized by those hospitals which had sent almoners to be trained by the council.

To meet the feeling which it believes to exist among social workers for an elementary knowledge of the foundations of eugenics, the Eugenics Education Society has organized a course of lectures on the groundwork of eugenics which will be held at the Imperial College of Science, South Kensington, during next year. In the spring term (January 14th to March 20th) there will be a course of elementary biology with special reference to the reproductive system conducted by Mr. Clifford Dobell, M.A., Lecturer in Zoology, Imperial College of Science. The course will include practical and experimental work in laboratory. In the summer term (April to July) a course on heredity, including evolution, genetics, and heredity in man will be conducted by Mr. R. C. Punnett, F.R.S., Arthur Balfour Professor of Genetics in the University of Cambridge. In the autumn term (October to December) the course will deal with statistical methods applied to some problems in eugenics, and will be conducted by Mr. G. Udny Yule, University Lecturer in Statistics, Cambridge. The fee for the complete course of three terms is ten guineas, and for each separate term four guineas. Further particulars can be obtained on application to the Honorary Secretary of the Society, 6, York Buildings, Adelphi, W.C.

AT the annual dinner of the past and present students of the National Dental Hospital, on November 29th, Sir John Rose Bradford, who was in the chair, described dental surgery as a branch of general surgery which became specialized early, and showed, like other specialized branches, a certain tendency to drift away from its parent. It was no doubt true that dental surgery owed much to medicine and surgery, but it was equally true that dental surgery had reciprocated. The work done in connexion with pyorrhoea alveolaris and other septic conditions of the mouth had opened the eyes of clinicians to the dangers of apparently trivial affections. Again, too, though it was true that discoveries in medicine and pathology were doing much to render tropical countries more safely habitable, one of the most important questions that arose when the propriety of a given individual living in the tropics was under consideration was of a dental, not of a purely medical order; a sound mouth and teeth which could be got into good order were of the highest importance in enabling an individual to retain his health in hot climates and more or less uncivilized surroundings. A satisfactory account of the progress of the school was supplied by its Dean, Mr. Sidney Spokes. Some 20,000 patients had attended during the concluded year, so that there was ample clinical material, and none of the students sent up from the school had failed at their examination: one of them had been awarded the Smith-Turner exhibition, another taking second place. A scheme of amalgamation for teaching purposes with one of the medical schools of the university had been under consideration, but a definite conclusion had been postponed until the issue of the report of the Royal Commission on University Education in London. Reference to the report was subsequently made by Sir Alfred Pearce Gould, who said that he did not think that any medical or dental school that was doing good work had any reason to be nervous. Schools directly connected with the university might perhaps find it necessary to adopt certain changes, but he was certain that they would welcome any suggestion which spelt improvement, for every one recognized that methods of providing medical education had not reached their highest development. Other speakers during the evening were Dr. J. W. Pare, Mr. E. N. Perham, and Mr. R. R. Ward, the latter urging students to add to their licence in dentistry a degree or diploma in medicine.

THE reproduction of daylight conditions in artificial illumination was once the ideal of the illuminating engineer. But it seems now to be realized that the visibility of the orb of the sun in the heavens is not an advantage, and that diffused or reflected light is better. In the most modern lighting systems the actual light source is entirely hidden from view. At first the sources of light were tucked away in grooves around the walls a little below the level of the ceiling, but this tentative method of indirect lighting has given place to something more ambitious. In a paper read before the Illuminating Engineering Society on December 3rd, Mr. F. W. Willcox and Mr. H. C. Wheat described the system of illumination which is known in this country as "eye rest" and in America as "eye comfort." The lighting fixture in this case takes the form of a bowl containing highly efficient reflectors. This bowl, which has an opaque under-surface, is suspended from the ceiling of a room, and the whole of the light is thrown upwards. Thus by means of the excellent diffusing medium of the ceiling, with its large area of distribution, a gentle, glareless light, with softened shadows, is obtained uniformly over the room. The authors were mainly concerned with economic and aesthetic questions, and the main physiological consideration they advanced was that direct brilliant sources of light in the line of vision cause the eye to tire and weaken more quickly than diffused light, and that the nerve energy expended in bringing protective mechanism into play produces brain fatigue. On the other hand, with indirect lighting in which the ceiling is the only visible source of illumination, the rays are prevented from striking directly into the eye. It is a moot point whether the existence of glare, as in ordinary systems of lighting, makes it necessary to raise the intensity in order to produce a required visual acuity, but if this is the case a system of indirect lighting by which glare is avoided would require for the same visual acuity a smaller intensity of illumination. The authors described many applications of indirect lighting in offices and public buildings, and especially urged its adoption in hospitals, where exposed light-sources are irritating to helpless patients. The main objections urged against the system are the possible discomforts of an excessive surface-brightness of the ceiling, the flatness of the effect, the coldness of the light and the increase of cost. These were disputed point by point by the authors.

Letters, Notes, and Answers.

QUERIES.

SAMARITAN asks for advice as to the etiology and treatment of morning sickness in the early months of pregnancy.

SILVER desires references to the occurrence of abscess of the prostate gland or vesiculitis with abscess following the injection of silver nitrate to the prostatic urethra.

ENQUIRER asks for information as to the value of the treatment of malignant tumours by Antimeristem-Schmidt.

VARICOSE ULCERS.

J. H. M. asks for suggestions in the treatment of a case of long-standing varicose ulcers, two of them some inches in diameter. The patient is a man aged 62. He has had varicose ulcers for several years, and has been treated with all the usual lotions and ointments, Unna's paste, a solution of zinc sulphate 4 per cent., and lastly with a mixture of acid carbolic liquidum and liquor picis carbonis. His occupation necessitates him getting about to a certain extent, but most of the day he is sitting in an office. Just lately the ulcers have commenced to spread rapidly, for no particular reason. Is calcium iodide, internally, any good in this class of ulcer?

INCOME TAX.

A. B., who resides in furnished apartments, has been applied to for payment of income tax, Schedules A and B, though he has no property.

*** The demand is evidently made through a mistake on the collector's part, which he will no doubt admit on the facts being explained.

TRIAL LENSES.

J. H. H. has a set of spherical lenses for testing refraction. He has no cylindrical lenses, and desires to know what selection of cylindrical lenses would be most useful to purchase—say a dozen in all.

*** The smallest outfit which would be of any practical use would be lenses running from 0.25 to 3 in quarters, and in halves from 3 to 5 or 6. They would have to be both + and − in these strengths. A double set of each would be very desirable if any real use were made of them. That would mean either 36 lenses or 72. Any less number than 35 we should not advise, and this would only mean a single set of + and a single set of − lenses.

ANSWERS.

VINDEX.—Myopia may become apparent between the ages of 12 and 18—indeed, at almost any age.

DR. H. J. THORP (Ipswich) writes, in reply to "Ego's" inquiry in the BRITISH MEDICAL JOURNAL of November 16th, p. 1428, for treatment of dilatation of the stomach, to suggest: (1) Lavage. (2) A well-fitting bandage or abdominal belt. (3) Keep up a free action of the large intestine by mild aperients and the following mixture: Sodae bicarb. gr.x, acid. carbolic mjss, tinct. iodi mv, glycerine ʒss, aq. menth. pip. ʒj; t.d.s. (4) Starch food and saccharine substances should be taken sparingly.

LETTERS, NOTES, ETC.

TREATMENT OF WHOOPING-COUGH.

DR. CHAS. EDW. WINCKWORTH (Shefford, Beds), writes: Your correspondent appears to have been in error in supposing that the efficacy of potassium bicarbonate in the treatment of whooping-cough is due to the CO_2 that it contains. Many years ago the late Sir Morell Mackenzie and others made some useful experiments with this salt. It was found that its virtue consisted in its alkalinity, which lessened the viscidity of the phlegm. It appeared to have a decided expectorant effect upon the mucous lining of the larynx, and was superior in this respect to vin. ipecac. In 1874 I read in a small brochure on pertussis, written many years before that date, that vin. ipecac. was an improper remedy for that disease, unless there happened to be bronchitis in addition, for it irritated the larynx and increased the cough. My father used to give away in his parish a mixture containing potassium bitartrate coloured with cochineal whenever an epidemic of whooping-cough occurred. It appeared to be a useful remedy, and the country-folk had unbounded faith in it.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£ s. d.
Eight lines and under	0 4 0
Each additional line	0 0 6
A whole column	2 13 4
A page	8 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restante* letters addressed either in initials or numbers.